Reference Manual

METTLER TOLEDO

METTLER TOLEDO
Standard Interface Command Set
for Excellence and Excellence Plus Balances

MT-SICS 0 Version 2.3x
MT-SICS 1 Version 2.2x
MT-SICS 2 for XS/XP Balances
MT-SICS 3 for XS/XP Balances

Table of Contents

1 Quick Reference: Commands Listed Alphabetically 3

2 Introduction 5
2.1 Command Formats 6
2.1.1 Language Conventions 6
2.1.2 Balance Response Formats 7
2.1.3 Tips for Programmer 11

3 Commands and Balance Responses 14

4 Commands Listed by Tasks 141
4.1 Weighing, Zeroing, Taring 141
4.1.1 Setup 141
4.2 General Setup 142
4.2.1 Printer 142
4.2.2 Applications 142
4.2.3 Options 143
4.3 Adjustment/Test 143
4.4 Balance Information 143
4.5 Fast Data Communication 143

5 Example: Formula weighing application 144

6 What if...? 145

1 Quick Reference: Commands Listed Alphabetically

@ – Cancel ... Level 0 ... 14
A01 – Percent Weighing: Query/Set Reference in % ... Level 3 ... 15
A02 – Query/Set IDs of the Weighing Application ... Level 3 ... 16
A03 – Query/Set ID-Names of the Weighing Application ... Level 3 ... 17
A06 – Dynamic Weighing: Query/Set Filter ... Level 3 ... 18
A07 – Dynamic Weighing: Query/Set AutoStart ... Level 3 ... 19
A08 – Dynamic Weighing: Query/Set AutoTare ... Level 3 ... 20
A09 – Dynamic Weighing: Query/Set Data Acquisition ... Level 3 ... 21
A10 – Weighing: Query/Set Nominal, +Tolerance, -Tolerance ... Level 3 ... 22
B00 – FastHost: List Commands ... FastHost ... 23
B01 – FastHost: Send Individual Value ... FastHost ... 24
B02 – FastHost: Start/Stop Continuous Mode ... FastHost ... 25
B03 – FastHost: Query Time Interval of Value Counter ... FastHost ... 26
B04 – FastHost: Query/Set Format Specification ... FastHost ... 27
B05 – FastHost: Query/Set Stability Criteria ... FastHost ... 30
B06 – FastHost: Query/Set Downsampling Factor ... FastHost ... 31
B07 – FastHost: Query/Set Switch-On Mode ... FastHost ... 32
B08 – FastHost: Zero with FastHost Stability Criteria ... FastHost ... 33
C0 – Query/Set Adjustment Settings ... Level 2 ... 34
C1 – Start Adjustment According to Current Settings ... Level 2 ... 36
C2 – Start Adjustment with External Weight ... Level 2 ... 37
C3 – Start Adjustment with Internal Weight ... Level 2 ... 38
COM – Query/Set Communication Parameters of the built-in Serial Interface ... Level 2 ... 39
D – Display: Write Text to Display ... Level 1 ... 41
DAT – Query/Set Date ... Level 2 ... 42
DW – Display: Show Weight ... Level 1 ... 43
I0 – List All Implemented MT-SICS Commands ... Level 0 ... 44
I1 – Query MT-SICS Level and MT-SICS Versions ... Level 0 ... 45
I2 – Query Balance Data (Type and Capacity) ... Level 0 ... 46
I3 – Query Balance Software Version and Type Definition Number ... Level 0 ... 47
I4 – Query Serial Number ... Level 0 ... 48
I5 – Query SW-Identification Number ... Level 0 ... 49
I10 – Query Balance ID ... Level 2 ... 50
I11 – Query Balance Type ... Level 2 ... 51
I14 – Query Balance Information ... Level 2 ... 52
I15 – Query "Power On" Time ... Level 2 ... 54
I16 – Query Date of Next Service ... Level 2 ... 55
I17 – MinWeigh: Query Date of Next Test ... Level 2 ... 56
I18 – MinWeigh: Query Method ... Level 2 ... 57
I19 – MinWeigh: Query Limits ... Level 2 ... 58
I20 – Query MinWeigh Parameter ... Level 2 ... 59
I28 – Query Level Sensor ... Level 2 ... 60
K – Keys: Set Configuration ... Level 1 ... 61
M01 – Query/Set Weighing Mode ... Level 2 ... 63
M02 – Query/Set Environment ... Level 2 ... 64
M03 – Query/Set AutoZero ... Level 2 ... 65
M04 – Query/Set SmartSens Functions ... Level 2 ... 66
M05 – Query User Profile ... Level 2 ... 68
M06 – Query/Set Current User Profile ... Level 2 ... 69
M07 – Query/Set AutoDoor ... Level 2 ... 70
M08 – Display: Query/Set Brightness ... Level 2 ... 71
M09 – Display: Query/Set Contrast ... Level 2 ... 72
M10 – Beeper: Query/Set Display Mode ... Level 2 ... 73
M11 – Beeper: Query/Set Volume ... Level 2 ... 74
M12 – Beeper: Beep ... Level 2 ... 75
M13 – Query/Set Touch Function ... Level 2 ... 76
M14 – List Available Languages ... Level 2 ... 77
M15 – Query/Set Language ... Level 2 ... 78
M16 – Query/Set Standby Mode ... Level 2 ... 79
M17 – ProFACT: Query/Set single Time Criteria ... Level 2 ... 80
M18 – ProFACT/FACT: Query/Set Temperature Criterion ... Level 2 ... 82
M19 – Query/Set Adjustment Weight ... Level 2 ... 83
M20 – Query/Set Test Weight ... Level 2 ... 84
M21 – Query/Set Unit ... Level 2 ... 85
M22 – Query/Set Custom Unit Definitions ... Level 2 ... 87
M23 – Query/Set Readability, 1d/xd ... Level 2 ... 88
M24 – Query/Set Print Key Function ... Level 2 ... 89
M25 – List Applications ... Level 2 ... 90
M26 – Query/Set Current Application ... Level 2 ... 91
M27 – Query Adjustment History ... Level 2 ... 92
M29 – Query/Set Value Release ... Level 2 ... 93

M32 – ProFACT: Query/Set Time Criteria ..... Level 2 94
M33 – ProFACT: Query/Set Weekday ..... Level 2 95
M34 – MinWeigh: Query/Set Method ..... Level 2 96
M35 – Query/Set Zeroing Mode at Start-Up ..... Level 2 97
M36 – Query/Set LevelControl Setup ..... Level 2 98
M37 – Query/Set Draft Shield Door Opening Width ..... Level 2 99
M39 – SmartTrac: Query/Set Graphic ..... Level 2 100
M40 – Query/Set Inner Draft Shield Door Opening Width ..... Level 2 101
P100 – Printer Interface: Send Text ..... Level 2 102
P101 – Printer Interface: Send Weight Value ..... Level 2 103
P102 – Printer Interface: Send Weight Value Immediately ..... Level 2 104
PW – Piece Counting: Query/Set Piece Weight ..... Level 3 105
PWR – Power On/Off ..... Level 2 106
S – Send Stable Weight Value ..... Level 0 107
SI – Send Weight Value Immediately ..... Level 0 108
SIR – Send Weight Value Immediately and Repeat ..... Level 0 109
SIRU – Send Weight Value with Currently Displayed Unit Immediately and Repeat ..... Level 2 110
SIS – Send NetWeight Value with Actual Unit and Weighing Status ..... Level 2 111
SIU – Send Weight Value with Currently Displayed Unit Immediately ..... Level 2 113
SIUM – Send Weight Value with Currently Displayed Unit and MinWeigh Information Immediately ..... Level 2 114
SM0 – Dynamic Weighing: Cancel all SMx Commands ..... Level 3 115
SM1 – Dynamic Weighing: Start Immediately and Send the Result ..... Level 3 116
SM2 – Dynamic Weighing: Start After a Minimum Load Is Exceeded and Send Result ..... Level 3 117
SM3 – Dynamic Weighing: Start After a Minimum Load Is Exceeded, Send Result and Repeat ..... Level 3 118
SM4 – Dynamic Weighing: Query/Set Time Interval ..... Level 3 119
SNR – Send Stable Weight Value and Repeat on Weight Change ..... Level 2 120
SNRU – Send Stable Weight Value with Currently Displayed Unit and Repeat on Weight Change ..... Level 2 121
SR – Send Weight Value on Weight Change (Send and Repeat) ..... Level 1 123
SRU – Send Stable Weight Value with Currently Displayed Unit on Weight Change ..... Level 2 124
ST – Send Stable Weight Value on Pressing (Print) Key ..... Level 2 125
SU – Send Stable Weight Value with Currently Displayed Unit ..... Level 2 126
SUM – Send Stable Weight Value With Currently Displayed Unit and MinWeigh Information ..... Level 2 127
T – Tare ..... Level 1 128
TA – Query/Preset Tare Weight Value ..... Level 1 129
TAC – Clear Tare Value ..... Level 1 130
TI – Tare Immediately ..... Level 1 131
TIM – Query/Set Time ..... Level 2 132
TST0 – Query/Set Test Function Settings ..... Level 2 133
TST1 – Start Test Function According to Current Settings ..... Level 2 134
TST2 – Start Test Function with External Weight ..... Level 2 135
TST3 – Start Test Function with Internal Weight ..... Level 2 136
UPD – Query/Set Update Rate of the Host Interface ..... Level 2 137
WS – Query/Set Position of Draft Shield Doors ..... Level 2 138
Z – Zero ..... Level 0 139
ZI – Zero Immediately ..... Level 0 140

2 Introduction

In weight measurements the demands on the readability and maximum capacity of balances and scales range from less than one microgram up to several hundred tons. To meet these and other requirements, METTLER TOLEDO offers an extensive range of balances and scales. Many of the balances and scales used have to be capable of integration in a complex computer or data acquisition system. To enable you to integrate balances in your system in a simple manner and utilize their capabilities to the full, most balance functions are also available as appropriate commands via the data interface.

Standardization of the commands

All new METTLER TOLEDO balances launched on the market support the standardized command set "METTLER TOLEDO Standard Interface Command Set" (MT-SICS), which is divided into 4 levels, depending on the functionality of the balance:

MT-SICS level 0: Basic Command set, e.g. weighing cell.

MT-SICS level 1: Elementary command set, i.e. balances without integrated applications.

MT-SICS level 2: Extended command set specific for a balance family, e.g. for the Excellence balance line.

MT-SICS level 3: Application-specific command set, e.g. MT-SICS for piece counting or percent weighing.

A particular distinguishing feature of this concept is that the commands combined in MTSICS level 0 and 1 are identical for all balances. Both the simplest weighing balance and a fully expanded weighing work station recognize the commands of MT-SICS level 0 and 1.

What do the commands of MT-SICS level 0 and 1 offer?

You can use the commands of MT-SICS level 0 and 1 to perform the following operations via the interface:

- Request weighing results.
- Tare the balance and preset the tare weight.
- Zero the balance.
- Identify MT-SICS implementation.
- Identify the balance.
- Cancel Commands.
- Control the display.
- Control the keys for operation of the balance.

The commands of MT-SICS level 2 and 3

You can naturally use the data interface to exploit all functions available with your current balance or application. These additional functions are collected in the commands of MTSICS level 2 and 3. When creating your software application, please note that whereas the commands of MTSICS level 2 have been specially tailored to your balance family, the commands of MTSICS level 3 apply to your weighing application and can not be supported by every METTLER TOLEDO balance. In the enclosure with this manual, you can see what commands are supported by your balance and application.

Version number of the MT-SICS

Each level of the MT-SICS has its own version number which can be requested with the command I1 from level 0.

This manual describes:

- MT-SICS level 0, version 2.3x
- MT-SICS level 1, version 2.2x
- MT-SICS level 2 for Excellence balances
- MT-SICS level 3 for Excellence balances

You can use the command `I1` via the interface to request the MT-SICS level and MT-SICS versions implemented on your balance.

Please make sure that the versions implemented on your balance agree with those listed above.

Additional documentation on data interface

Settings of the interface such as baud rate, number of data bits, parity, handshake protocols and connector pin assignment are described in the operating instructions of the optional interface and the peripheral instrument or cable in question.

Data Exchange with the Balance

Each command received by the balance via the data interface is acknowledged by a response of the balance to the transmitter.
Commands and balance responses are data strings with a fixed format, and will be described in detail in chapter 3.

2.1 Command Formats

Commands sent to the balance comprise one or more characters of the ASCII character set. Here, the following must be noted:

- Enter commands only in uppercase. Nevertheless, units have to be capitalized properly.
- The possible parameters of the command must be separated from one another and from the command name by a space (ASCII 32 dec., in this manual represented as ␣).
- The possible input for "text" is a sequence of characters of the 8-bit ASCII character set from 32 dec. to 255 dec.
- Each command must be closed by CR LF (ASCII 13 dec., 10 dec.).
  The characters CR LF, which can be inputted using the Enter or Return key of most entry keypads, are not listed in this description, but it is essential they be included for communication with the balance.

2.1.1 Language Conventions

Throughout this manual, the following conventions are used for command and balance response syntax:

- Triangle brackets (**< >**) indicate that you must specify a value for the enclosed parameter. The parameter's name is written in italic typeface. The brackets are not sent with the command string.
- Square brackets (**[ ]**) indicate that the enclosed expression is optional and can be omitted. The brackets are not sent with the command string.
- Intervals or ranges are represented using the "dot-dot" notation (*a*..*b*) indicating the set of numbers from *a* to *b* including *a* and *b*.
- In Examples, commands sent to the balance are set as ↓; balance responses from the balance are set as ↑.

Example

Command to balance which writes Hello into the balance display:

↓	D␣"Hello"	The quotation marks " " must be inserted in the entry
↑	D␣A	Command executed successfully

The command terminator CR LF is not shown.

2.1.2 Balance Response Formats

All responses sent by the balance to the transmitter to acknowledge the received command have one of the following formats:

- Balance Response with weight value
- Balance Response without weight value
- Error message

2.1.2.1 Format of Balance Responses with Weight Value

A general description of the balance response with weight value is the following.

<*ID*>	␣	<*Status*>	␣	<*WeightValue*>	␣	<*Unit*>	CR	LF
1-2 characters		1 character		10 characters		1-5 characters		

Name	Type	Values	Meaning
<*ID*>	String		Balance response identification, refers to the invoking command
␣	Blank		Space (ASCII 32 dec.)
<*Status*>	Character	S	**S**table weight value
		M	Stable weight value, but below minimal weight (**SIUM** and **SUM** only)
		D	Unstable ("D" for **D**ynamic) weight value
		N	Unstable weight value, below minimal weight (**SIUM** and **SUM** only)
<*WeightValue*>	Float		Weighing result; shown as a number with 10 characters (after a blank/space!), including decimal point, and minus sign (–) directly in front of the first digit if the value is negative. The weight value appears right aligned. Preceding zeros are not shown except for the zero to the left of the decimal point. With METTLER TOLEDO DeltaRange balances, outside the fine range the last decimal place is shown as a space.
<*Unit*>	String		Weight unit as actually set under host unit
CR	Byte		Carriage return (ASCII 13 dec.)
LF	Byte		Line feed (ASCII 10 dec.)

Examples

Balance response with stable weight value of 0.256 g:

↓	S	Request a stable weight value
↑	S␣S␣␣␣␣␣0.256␣g	

Balance response with stable weight value outside the fine range:

↓	S	Request a stable weight value
↑	S␣S␣␣␣␣4875.2␣␣g	

2.1.2.2 Format of Balance Responses Without Weight Value

A general description of the balance response without weight value is the following:

<*ID*>	␣	<*Status*>	␣	Parameters…	CR	LF

1-5 characters		1 character				

Name	Type	Values	Meaning
<ID>	String		Balance response identification, refers to the invoking command
␣	Blank		Space (ASCII 32 dec.)
<Status>	Character	A	Command executed successfully
		B	Command not yet terminated, additional responses following
Parameters…			Command-dependent response code
CR	Byte		Carriage return (ASCII 13 dec.)
LF	Byte		Line feed (ASCII 10 dec.)

Examples

Set the update rate to 20 weight values per second:

↓	UPD␣20	
↑	UPD␣A	Command executed successfully

Query the actual update rate:

↓	UPD	
↑	UPD␣A␣18.311	Update rate is set to 18.311 values per second

2.1.2.3 Error Messages

Command-specific Error Messages

A general description of the balance response without weight value is the following:

<ID>	␣	*<Status>*	CR	LF
1-5 characters		1 character		

Name	Type	Values	Meaning
<ID>	String		Balance response identification, refers to the invoking command
␣	Blank		Space (ASCII 32 dec.)
<Status>	Character	+	Balance is in overload range (weighing range exceeded)
		-	Balance is in underload range (e.g. weighing pan is not in place)
		L	Logical error (e.g. parameter not allowed)
		I	Internal error (e.g. Balance not ready yet)
CR	Byte		Carriage return (ASCII 13 dec.)
LF	Byte		Line feed (ASCII 10 dec.)

Examples

Trial to set the update rate to 20 weight values per second:

↓	UPD␣290	Update rate accidentally set to 290
↑	UPD␣L	Command not executed successfully; parameters is outside valid range

Response while balance is in overload range:

↓	SI	Request a weight value immediately
↑	S␣+	overload; no weight value available

General Error Messages

There are three different error messages:

<ID>	CR	LF
2 characters		

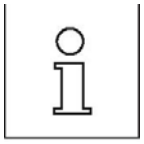
Name	Type	Values	Meaning
<ID>	String	ES	Syntax error: The balance has not recognized the received command
		ET	Transmission error: The balance has received a "faulty" command, e.g. owing to a parity error or interface break
		EL	Logical error: The balance can not execute the received command
CR	Byte		Carriage return (ASCII 13 dec.)
LF	Byte		Line feed (ASCII 10 dec.)

Example

Trial to set the update rate to 20 weight values per second:

↓	upd␣20	UPD accidentally written in lowercase
↑	ES	Syntax error; upd not recognized as a command

2.1.3 Tips for Programmer



This reference manual covers the MT-SICS commands for Excellence and Excellence Plus balances. As the balances can differ based on model and software version, not all the MT-SICS level 2 and 3 commands are usable on every model. We therefore recommend using the `I0` command to get an overview of all commands that are supported by a particular balance. Commands that are listed with the `I0` command, but not described in this booklet, are not available for the user.

Planning the use of MT-SICS Commands

Investigations of various applications have shown that the vast majority of all system solutions can be handled with the commands of MT-SICS level 0 and 1. This means for you: if you restrict yourself to the commands of MT-SICS level 0 and 1, you can expand your system with additional balances from METTLER TOLEDO without having to change your application programs.

Setup

Use the same setup during configuration and later use: If you intend to use the bridge without the terminal, the configuration has to be done without terminal as well. Due to the system's architecture, the storage behavioral of configurations is different whether the terminal is attached to the bridge or not: With a terminal attached, configuration is stored in the terminal's memory; without a terminal attached, the bridge's memory is used. Removing a terminal after configuration means to remove the configuration and activation the bridge's (default) configuration. Adding a terminal after configuration means overriding the configuration with the one stored within the terminal.

Command and Balance Response

You can improve the dependability of your application software by having your program evaluate the response of the balance to a command. The response is the acknowledgement that the balance has received the command.

Cancel

To be able to start from a determined state, when establishing the communication between balance and system, you should send a cancel command (`@`) to the balance. When the balance or system is switched on or off, faulty characters can be received or sent.

Parameter Values After Switching Balance On/Off

The commands of the standard command are saved on the permanent memory of the balance. This means that all values changed via the interface are saved when the balance is switched off.

Several Commands in Succession

If several commands are sent in succession without waiting for the corresponding balance responses, it is possible that the balance confuses the sequence of command processing or ignores entire commands.

METTLER TOLEDO DeltaRange Balances

If the fine range of DeltaRange balances has been exceeded at the time of transmission, the balance sends a weight value as balance response in which the tenth character is a space.

Update Rate and Timeout

The update rate for repeated commands and the duration of the timeout (time-limit function) depend on the balance type; see technical data of the balance in question.

Carriage Return, Line Feed

Depending on the platform, CR LF is not just a "new line" (Java: "newLine()" or C/C++ "\n"):

Platform	'New Line'
DOS/Windows	CR LF
Macintosh	CR
Unix	LF

Nevertheless, all commands have to be closed by a CR LF (dec: 13, 10; hex: 0D, 0A).

Quotation Marks " "

Quotation marks included in the command must always be entered. If a quotation mark is located within the string, it may be escaped by a backslash (\):

↓	D␣"place 4\"filter!"	
↑	D␣A	Balance display: place 4" filter!

Weight Unit of Weight Value – Host Unit

It is always essential to consider the weight unit that is to be used to display weighing results. Depending on where the results are output, the balances offer the possibility of selecting a particular unit (**M21**). This enables the displayed unit and info unit to be shown on the terminal. Host unit is used to output the weighing results via an interface (host) on the basis of MT-SICS commands. The weight values and the displayed unit can only be output by means of the **"S*U"** commands.

Digit [d]

A digit refers to the smallest numerical increment a balance can display – this is also referred to as the balance's readability. E.g. a XP205 has five decimal places; its digit is 0.01 mg. The digit is sometimes used as a generic unit.

Behavior with Automatic Door Control

Various commands implicitly support motor-operated draft shield doors (where used). This means that motor-operated draft shield doors can be activated whenever a stable weight value has to be recorded in the shortest possible time. Activating automatic door control results in the following:

- Condition of doors saved
- Doors closed
- Commands executed
- Previously saved condition of doors reestablished.

The most important applications for the behavior described above are:

- Zeroing, taring
- Adjustment and testing procedures, as well as FACT
- **S*** commands
- Print commands
- Others

Other definitions

- The command is executed even when automatic door control is not activated.
- Even if the doors cannot be closed (clamping protection), the command is executed and the previously saved condition of the doors reestablished.
- If a command in progress is interrupted (Timeout, Cancel, etc.), the "old" door condition is reestablished.
- If the "old" door condition cannot be reestablished, the doors either remain where they are or are closed (this may follow a few attempts to attain the old condition).

Binary Coded Multiple Selections

Some parameters that allow multiple selections are binary coded: Each possible selection is represented by one bit, the corresponding parameter equals to the decimal interpretation.

Selection 8	Selection 7	Selection 6	Selection 5	Selection 4	Selection 3	Selection 2	Selection 1		Parameter
0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1		0..255
2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0		$\sum_{i=1}^{8} Selection_i \cdot 2^{i-1}$

Responses may easily be interpreted by converting the decimal number to binary again.

FastHost Commands

This section deals with a special set of commands that are implemented in the weighing platform independently of the other MT-SICS commands. Because the interface is addressed directly, these commands support an extremely high update rate. The weight values that are output can also be individually formatted and assigned additional information such as stability and time.

Essentially, these commands are suitable for special applications with embedded systems and in-process applications such as dispensing.

If implemented, FastHost commands will demonstrate the following properties:

- They will not appear in the command listing of the command **I0** (request with **B00**)
- In the case of a weighing platform with a connected terminal, the commands will only be available on the permanent RS interface via a host.
- In the case of a stand-alone platform without any additional options, the commands will be available on the permanent RS232 interface along with the usual host commands.
- In the case of a stand-alone bridge with an additional option, the commands will only be available on the optional interface along with the usual host commands.
- Most commands will be permanently saved. To establish a default condition, the following command sequence is recommended:
    - `B02␣0`
    - `B04␣"S␣%S%␣%W:10%␣%U%"`
    - `B05␣0`
    - `B06␣1`
    - `B07␣0`

3 Commands and Balance Responses

@ – Cancel Level 0

Description

@ can be used to achieve the same effect as disconnecting and reconnecting the power supply, which empties the volatile memories. The purpose of this command is to initiate a command sequence.

Syntax

Command

@	Resets the balance to the condition found after switching on, but without a zero setting being performed.

Balance Response

I4␣A␣"<*SNR*>"	Serial number is emitted; the balance is ready for operation.

Comments

- All commands awaiting responses are cancelled.
- Key control is set to the default setting **K␣1**.
- Unlike other balances, the tare memory is not reset to zero for XP/XS balances.
- The cancel command is always executed.
- If the balance is on standby, it is switched on.
- The emitted serial number corresponds to the serial number of the terminal (if one is present). See also **I4**.

Example

↓	@	Cancel
↑	I4␣A␣"1114350697"	Balance is "reset", its serial number is 1114350697

A01 – Percent Weighing: Query/Set Reference in % Level 3

Description

Use this command to set or query the reference value for percent weighing. For querying to take place, a reference value must have been saved beforehand (`A01` or function key

or

).

Syntax

Commands

`A01`	Query of the reference for the percent weighing application.
`A01␣<Reference>`	Set the reference for the percent weighing application.

Balance Responses

`A01␣A␣<Reference>`	Reference for the percent weighing application is set.
`A01␣B` `A01␣A`	Start to set the reference (waiting for stable weight) Command understood and executed successfully.
`A01␣I`	Command understood but currently not executable.
`A01␣L`	Command understood but not executable (e.g. percent weighing application is not active or parameter is incorrect) or no reference value present.
`A01␣E`	Setting reference aborted (not stable, over- or underload, abortkey,…).

Parameter

Name	Type	Values	Meaning
<Reference>	Float	(0)..100	Reference for the percent weighing application in %; must be greater than zero.

Comments

- This command can only be used when the application "percent weighing" is started. For details on available applications and how the activate them see also **`M25`** and **`M26`**.
- Use the **`S*U`** commands for percent weighing. Otherwise, the results will be displayed in the set unit unless the host unit is changed to % using **`M21`**.

Example

↓	`A01␣100.00`	Set the reference for percent weighing to 100.00%
↑	`A01␣B`	Reference is set, waiting for stable weight
↑	`A01␣A`	Command executed successfully

A02 – Query/Set IDs of the Weighing Application Level 3

Description

You can use A02 to assign a value or text to sample IDs, or query the current value or text.

Syntax

Commands

A02	Query the IDs of the Weighing Application.
A02␣<*No*>␣"<*ID*>"	Set the ID of the Weighing Application.

Balance Responses

A02␣B␣<*No*>␣"<*ID*>" A02␣B␣<*No*>␣"<*ID*>" A02␣A␣<*No*>␣"<*ID*>"	Query the ID's of the Weighing Application.
A02␣A	Command understood and executed successfully.
A02␣I	Command understood but currently not executable.
A02␣L	Command understood but not executable (e.g. weighing application is not active or parameter is incorrect).

Parameters

Name	Type	Values	Meaning
<*No*>	Integer	1..n	Number of Weighing ID
<*ID*>	String		String of Weighing ID (max. 24 char.)

Comment

- This command only applies to the "Weighing" application. For details on available applications and how the activate them see also **M25** and **M26**.

Example

↓	A02	Query the IDs of the Weighing Application
↑	A02␣B␣1␣"12345"	ID1 is 12345
↑	A02␣B␣2␣"67890"	ID2 is 67890
↑	A02␣A␣3␣""	No ID3 is set

↓	A02␣1␣"98765"	Set the ID1 to 98765
↑	A02␣A	ID1 is set

A03 – Query/Set ID-Names of the Weighing Application Level 3

Description

You can use A03 to assign an individual name to sample IDs, or query the current name.

Syntax

Commands

A03	Query the IDs-Name of the Weighing Application.
A03␣<*No*>␣"<*ID*>"	Set the ID-Name of the Weighing Application.

Balance Responses

A03␣B␣<*No*>␣"<*ID*>" A03␣B␣<*No*>␣"<*ID*>" A03␣A␣<*No*>␣"<*ID*>"	Query the ID's-Name of the Weighing Application.
A03␣A	Command understood and executed successfully.
A03␣I	Command understood but currently not executable.
A03␣L	Command understood but not executable (e.g. weighing application is not active or parameter is incorrect).

Parameters

Name	Type	Values	Meaning
<*No*>	Integer	1..n	Number of Weighing ID-Name
<*ID*>	String		String of Weighing ID-Name (max. 24 char.)

Comment

- This command applies to the "Weighing" application. For details on available applications and how the activate them see also **M25** and **M26**.

Example

↓	A03	Query the IDs-Name of the Weighing Application
↑	A03␣B␣1␣"Batch"	Name of ID1 is "Batch"
	A03␣B␣2␣"Lot"	Name of ID2 is "Lot"
	A03␣A␣3␣""	No ID3-Name is set

↓	A03␣1␣"Batch"	Set the ID1-Name to "Batch"
↑	A03␣A	Name of ID1 is set

A06 – Dynamic Weighing: Query/Set Dynamic Behavior Level 3

Description

You can use A06 to set the dynamic behavior of the weighing material, or query the current setting.

Syntax

Commands

A06	Query of the weighing filter for the dynamic weighing application.
A06␣<*DynamicBehavior*>	Set the weighing filter for the dynamic weighing application.

Balance Responses

A06␣A␣<*DynamicBehavior*>	Set the dynamic behavior.
A06␣A	Command understood and executed successfully.
A06␣I	Command understood but currently not executable, application is not active.
A06␣L	Command understood but not executable (e.g. dynamic weighing application is not active or parameter is incorrect).

Parameter

Name	Type	Values	Meaning
<*DynamicBehavior*>	Integer	1	Stable, suitable for relatively stable weighing objects
		2	Standard, suitable for normal weighing objects
		3	Unstable, suitable for unstable weighing objects

Comment

- This command can only be used when the application "dynamic weighing" is started. For details on available applications and how the activate them see also **M25** and **M26**.

Example

↓	A06␣2	Set the dynamic behavior to "standard"
↑	A06␣A	Dynamic weighing filter is set

A07 – Dynamic Weighing: Query/Set Start Mode — Level 3

Description

Settings for automatically starting dynamic weighing. A measuring cycle can be started automatically if a specified minimum weight is exceeded.

Syntax

Commands

A07	Query of the start mode for the dynamic weighing application.
A07␣<*StartMode*>	Set the AutoStart for the dynamic weighing application.

Balance Responses

A07␣A␣<*StartMode*>	Set the dynamic weighing start mode.
A07␣A	Command understood and executed successfully.
A07␣I	Command understood but currently not executable.
A07␣L	Command understood but not executable (e.g. dynamic weighing application is not active or parameter is incorrect).

Parameter

Name	Type	Values	Meaning
<*StartMode*>	Integer	0	Step procedure
		1	AutoStart on
		2	Quick procedure

Comment

- This command can only be used when the application "dynamic weighing" is started. For details on available applications and how the activate them see also **M25** and **M26**.
- If the "AutoTare" function is also activated, the display is automatically reset to zero on completion of each successful weighing operation.
- Refer to Weighing Manual, Chapter "Dynamic Weighing".

Example

↓	A07␣1	Set the dynamic weighing with AutoStart
↑	A07␣A	Dynamic weighing AutoStart is activated

A08 – Dynamic Weighing: Query/Set AutoTare Level 3

Description

Querying or setting the AutoTare function. As soon as you have removed the weighing sample in the "Dynamic Weighing" application, the display is automatically reset to zero and the balance is then ready for the next sample to be weighed.

Syntax

Commands

A08	Query of the AutoTare function for the dynamic weighing application.
A08␣<*AutoTare*>	Set the AutoTare function for the dynamic weighing application.

Balance Responses

A08␣A␣<*AutoTare*>	Set the dynamic weighing AutoTare function.
A08␣A	Command understood and executed successfully.
A08␣I	Command understood but currently not executable.
A08␣L	Command understood but not executable (e.g. dynamic weighing application is not active or parameter is incorrect).

Parameter

Name	Type	Values	Meaning
<*AutoTare*>	Integer	0	AutoTare off, no zeroing after weighing
		1	AutoTare on, automatic zeroing after weighing

Comment

- This command can only be used when the application "dynamic weighing" is started. For details on available applications and how the activate them see also **M25** and **M26**.
- The Dynamic Weighing AutoTare function has the same effect as zeroing. No tare values are imported into the tare memory.

Example

↓	A08␣1	Set the dynamic weighing with AutoTare
↑	A08␣A	Dynamic weighing AutoTare is activated

A09 – Dynamic Weighing: Query/Set Data Acquisition Level 3

Description

Use A09 to set the type of data acquisition or query the current setting. Depending on the behavior of the weighing sample, it can also be used to optimize the speed at which the results are transferred.

Syntax

Commands

A09	Query of the data acquisition for the dynamic weighing application.
A09␣<*DataAcq*>	Set the data acquisition for the dynamic weighing application.

Balance Responses

A09␣A␣<*DataAcq*>	Set the data acquisition for the dynamic weighing application.
A09␣A	Command understood and executed successfully.
A09␣I	Command understood but currently not executable.
A09␣L	Command understood but not executable (e.g. dynamic weighing application is not active or parameter is incorrect).

Parameter

Name	Type	Values	Meaning
<*DataAcq*>	Integer	0	Data acquisition setting: Dynamic behavior
		1	Data acquisition setting: Time interval

Comment

- This command can only be used when the application "dynamic weighing" is started. For details on available applications and how the activate them see also **M25** and **M26**.
- Use **A06** to set the filters for "Dynamic behavior" in accordance with the dynamic behavior of the weighing sample.
- The time interval can be set with **SM4**.
- Refer to Weighing Manual, Chapter "Dynamic Weighing"

Example

↓	A09␣1	Set the data acquisition for the dynamic weighing application to "time interval"
↑	A09␣A	Data acquisition for the dynamic weighing application has been set

A10 – Weighing: Query/Set Nominal, +Tolerance, -Tolerance Level 3

Description

You can use `A10` to enter the nominal values, inc. +/- tolerances, or query the current values. As soon as you have specified the values, the SmartTrac changes and displays the graphic weighing-in aid.

Syntax

Commands

`A10`	Query of the nominal value, + tolerance, - tolerance.
`A10␣<No>␣<Value>␣<Unit>`	Set the nominal value, + tolerance, - tolerance.

Balance Responses

`A10␣B␣0␣<Value>␣<Unit>`
`A10␣B␣1␣<Value>␣<Unit>`
`A10␣A␣2␣<Value>␣<Unit>`
	Query of the nominal value, + tolerance, - tolerance.

`A10␣A`	Command understood and executed successfully.
`A10␣I`	Command understood but currently not executable.
`A10␣L`	Command understood but not executable.

Parameters

Name	Type	Values	Meaning
<No>	Integer	0	Nominal value
		1	+ tolerance
		2	- tolerance
<Value>	Float		Nominal value
<Unit>			Weight unit, % with +/- tolerances possible

Comment

- The values will be output differently depending on the application. For details on available applications and how the activate them see also **`M25`** and **`M26`**.
- Specified nominal and tolerance values must be reset manually:
  `A10␣0␣0␣g`
  `A10␣1␣2.5␣%`
  `A10␣2␣2.5␣%`
- As soon as you have specified the values, the SmartTrac switches to the graphic weighing-in aid.
- Weight and percentage values are rounded, as is the case with values entered manually.

Examples

↓	`A10`	Query of the nominal value, + tolerance, - tolerance
↑	`A10␣B␣0␣100.12␣g`	Current setting is nominal value 100.12 g, + tolerance is 5.25 g and - tolerance is 7.6%
↑	`A10␣B␣1␣5.25␣g`	
↑	`A10␣A␣2␣7.6␣%`	

↓	`A10␣0␣100.12␣g`	Set the nominal value to 100.12 g
↑	`A10␣A`	Nominal value is set

B00 – FastHost: List Commands — FastHost

Description

Returns all implemented FastHost commands for the connected balance.

Syntax

Command

B00	Query of lists of FastHost commands.

Balance Responses

B00␣B␣"<*FastHostCommand*>" B00␣B... B00␣A␣"<*FastHostCommand*>"	1st FastHost command. ... last FastHost command.
B00␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<*FastHostCommand*>	String		FastHost command

Example

↓	B00	Query of lists of FastHost commands
↑	B00␣B␣"B00"	Command B00 is available
↑	B00␣B␣"B01"	Command **B01** is available
↑	B00␣B␣"B02"	Command **B02** is available
↑	B00␣B␣"B03"	Command **B03** is available
↑	B00␣B␣"B04"	Command **B04** is available
↑	B00␣B␣"B05"	Command **B05** is available
↑	B00␣B␣"B06"	Command **B06** is available
↑	B00␣B␣"B07"	Command **B07** is available
↑	B00␣A␣"B08"	Command **B08** is available

B01 – FastHost: Send Individual Value — FastHost

Description

Outputs the data and weight values that have been individually formatted using **B04**. The command behavior is similar to that of **SI**.

Syntax

Command

B01	Send individual FastHost value.

Balance Responses

<output>	As per format specification (cf **B04**).
B01␣L	Command understood but not executable (incorrect parameter).

Example

↓	B01	Send individual FastHost value
↑	S␣␣␣␣␣123.45␣g	As per current format specification (**B04␣"%S%␣%W:10%␣%U%"**) FastHost value is a stable ("S") value of 123.45 g

B02 – FastHost: Start/Stop Continuous Mode — FastHost

Description

Continually outputs the data and weight values that have been individually formatted using **B04**, and repeats this procedure until the function is switched off.

Syntax

Command

B02␣<*ContinuousMode*>	Start/stop continuous mode.

Balance Responses

<*output*>	Continuous as per sampling reduction (cf **B06**) and format specification (cf **B04**).
B02␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<*ContinuousMode*>	Integer	0	Stop (Default)
		1	Start

Comment

- Switch off: Must be switched off with `B02 0` once the task is complete.

Example

↓	B02␣1	Query of Start continuous mode
↑	D␣␣␣␣123.45␣g	Continuous and as per current format specification (**B04␣"%S%␣%W:10%␣%U%"**) defined
↑	S␣␣␣␣123.54␣g	

B03 – FastHost: Query Time Interval of Value Counter FastHost

Description

B03 can be used to query the value-counter time interval. A time axis for the weighing results can be calculated on the basis of this time interval and the counter, while also taking into account the downsampling factor.

The value of the time interval is determined by the transmission speed.

Syntax

Command

B03	Query of time interval of the value counter.

Balance Responses

B03␣A␣<*TimeInterval*>	Time interval the value counter in seconds.
B03␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<*TimeInterval*>	Float		Time interval the value counter in seconds

Example

↓	B03	Query of time interval of value counter
↑	B03␣A␣0.010923	Time interval is 10.923 ms

B04 – FastHost: Query/Set Format Specification — FastHost

Description

B04 can be used to individually format the output for **B01** and **B02**. As well as the structure of the output string, additional information and comments on the weight value can be provided.

Syntax

Commands

B04	Query of the FastHost format specification.
B04␣"<*Format*>"	Set the FastHost format specification.

Balance Responses

B04␣A␣"<*Format*>"	Format (string).
B04␣A	FastHost format specification is set.
B04␣L	Command understood but not executable (incorrect parameter).
B04␣I	Parameter not permanently saved.

Parameter

Name	Type	Values	Meaning
<*Format*>	String	Combination of **Format specifiers** listed in the table below; separated by blanks	Specification of the output format for **B01** and **B02**

Format specifiers	Information	Options
%W[:[l][:p]]%	Weight value (net value)	**l** Length: Total number of characters of the weight value including decimal point and decimal places (if any). Formatting is right-justified as long as the defined number of places for the output display is sufficient. **p** Decimal places: Number of decimal places for the weight value. **Note**: The maximum possible number of decimal places is limited to the resolution of the balance (Default). Output is always as full range with rounding (DeltaRange is not supported).
%A[:[l][:p]]%	Absolute weight value referring to fabrication zero point	
%U%	Unit (as string)	No options, unit is fixed to gram
%S[:s:i]%	Stability information (stable/unstable)	**s** Indicator for a stable weight value (default S) **i** Indicator for an unstable weight value (default D). **Note**: Only 1 character allowed. The stability information is only used with **B01** and **B02**.
%Q[:[l][:p]]%	Signal width as indicator for the measured value stability in grams. **Note**: The signal width can be used for a user specific detection stable/ unstable with **B05**.	**l** Length: Total number of characters of the stability indication including decimal point and decimal places (if any). Formatting is right-justified as long as the defined number of places for the output display is sufficient. **p** Decimal places: Number of decimal places for the weight value. **Note**: Default:10:0.

`%C[:m]%`	Value counter **Note**: The measured value counter arises with fix counting rate and can be used as a Time information	`m` Maximal counter value: supplies the measured value counter modulo indicated value m.
`%T[:[l][:p]]%`	Temperature level of the measuring cell. **Note**: The temperature value in the cell isn't identical to the balancing ambient temperature and can not be used instead.	`l` Length: Total number of characters of the temperature value including decimal point and decimal places (if any). Formatting is right-justified as long as the defined number of places for the output display is sufficient. `p` Decimal places: Number of decimal places for the weight value (default: 3). **Note**: Maximum number of decimal places is limited to 3.
<text>	Constant Text	**Note**: The characters % and " need to be escaped when they occur in static text: `%%` Percent sign as constant text at the start of format or after a <Blank> `\"` Double quotation mark as a text component
␣	Information delimitation	

Comments

- The format specification is permanently stored under user data.
- Only applies to the **B01** and **B02** commands.
- With overload the results **%W%** and **%A%** the value 99999999 are given.
  With underload the results **%W%** and **%A%** the value –99999999 are given.
- **%C%** concerns an internal value counter of signal processing. This is initialized after each PowerOn of the weighbridge with 0. With the maximum count 4294967295 (4Byte unsigned long) an overflow occurs and the counter starts again with 0. With Lotus/ Magellan balances with a time interval of measured value counter of 10.923 ms this overflow takes place on the 543rd day after PowerOn. With a "modulo-1000" formatting, the overflow counter runs only to 999 and then returns to 0 and starts again.

Examples

↓	`B04␣"S␣%S%␣%W:11:3%␣%U%␣%C:100%"`	Set the FastHost format specification
↑	`B04␣A`	FastHost format specification is set
↓	`B01`	Request a weight value
↑	`S␣D␣␣␣␣1234.563␣g␣23`	**B01**/**B02** response (weight right-aligned)

↓	`B04␣"Weight␣=␣%W::2%␣%U%"`	Set the FastHost format specification
↑	`B04␣A`	FastHost format specification is set
↓	`B01`	Request a weight value
↑	`Weight␣=␣1234.56␣g`	**B01**/**B02** response (weight left-aligned)

↓	`B04␣"%%W%␣*␣%%A%␣=␣%%WA%"`	Set the FastHost format specification
↑	`B04␣A`	FastHost format specification is set
↓	`B01`	Request a weight value
↑	`%W%␣*␣%A%␣=␣%WA%`	**B01**/**B02** supply this response

↓	`B04␣"\"%W%\"␣is␣%W%"`	Set the FastHost format specification

↑	B04␣A	FastHost format specification is set
↓	B01	Request a weight value
↑	"%W%"␣is␣161.5435	**B01**/**B02** supply this response:

B05 – FastHost: Query/Set Stability Criteria — FastHost

Description

Use B05 to define a stability criterion for the weighing signal in grams/time interval.

Syntax

Commands

B05	Query of the FastHost stability criteria.
B05␣<*Width*>	Set the FastHost stability criteria in grams.

Balance Responses

B05␣A␣<*Width*>	Current FastHost stability criteria.
B05␣A	FastHost stability criteria is set.
B05␣L	Command understood but not executable (incorrect parameter).
B05␣I	Parameter not permanently saved.

Parameter

Name	Type	Values	Meaning
<*Width*>	Float	See comments	FastHost signal width as stable criteria in grams

Comments

- The condition of stability is permanently stored.
- Only the signal width can be adjusted to determine the FastHost stability by means of B05. The observation time for the determination of the signal width is given by the balance system. This can be different, depending on the adjustment of the balance parameters and on the type.
- If the value of the FastHost signal width (B05) is more than 1000 times smaller than the smallest resolution of the balance, then the internal stability information of the balancing system will be sent to the stability marking, i.e. same behavior concerning stability information as with the **S**-commands.
- The default value of the balance according to its type definition is set using B05 0.
- The value has up to (number of decimal places balance +3) decimal places. The size of the value can be determined locally using **B04** and the parameter %Q%, and typically moves within the range of approx. ½ digit/time interval.

Example

↓	B05	Query of the FastHost stability criteria
↑	B05␣A␣0.0006	Width of signal for stability is 0.0006 g

B06 – FastHost: Query/Set Downsampling Factor — FastHost

Description

Use `B06` to specify that only every nth value should be output within the context of repetitive continuous sending.

Syntax

Commands

`B06`	Query of the FastHost downsampling factor.
`B06␣<Rate>`	Set the FastHost downsampling factor.

Balance Responses

`B06␣A␣<Rate>`	Current FastHost downsampling factor.
`B06␣A`	FastHost downsampling factor is set.
`B06␣L`	Command understood but not executable (incorrect parameter).
`B06␣I`	Parameter not permanently saved.

Parameter

Name	Type	Values	Meaning
<Rate>	Integer	1	Give all values (max. rate)
		2	Give every second value
		3	Give every third value
		…	…
		65,535	Send every 65,535th sample only

Comments

- Settings are permanently stored.
- In the case of repetitive sending, the time between outputs is calculated using (value `B06` x value **`B03`**).

Example

↓	`B06`	Query of the FastHost downsampling factor
↑	`B06␣A␣4`	With continuous sending every forth value will be given

B07 – FastHost: Query/Set Switch-On Mode — FastHost

Description

You can use B07 to specify that repetitive continuous sending (as in **B02**) should start automatically as soon as the balance is switched on.

Syntax

Commands

B07	Query of the FastHost switch-on mode.
B07␣<*Mode*>	Set the FastHost switch-on mode.

Balance Responses

B07␣A␣<*Mode*>	Current FastHost switch-on mode.
B07␣A	FastHost switch-on mode is set.
B07␣L	Command understood but not executable (incorrect parameter).
B07␣I	Parameter not permanently saved.

Parameter

Name	Type	Values	Meaning
<*Mode*>	Integer	0	Normal start
		1	Automatic send after switch-on is activated

Comments

- The switch-on mode is permanently stored.

Example

↓	B07	Query of the FastHost switch-on mode
↑	B07␣A␣1	Automatic send after switch-on is activated

B08 – FastHost: Zero with FastHost Stability Criteria — FastHost

Description

Use `B08` to define the stability criterion for the FastHost zero, in a similar way to **`B05`** for the weight value.

Syntax

Command

`B08`	Set to zero with FastHost stability criteria.

Balance Responses

`B08␣A`	Set to zero with FastHost stability criteria successfully completed.
`B08␣-`	Command stopped due to overload.
`B08␣+`	Command stopped due to underload.
`B08␣I`	Command not available, stopped or timed-out.

Comments

- The switch-on mode is permanently stored.
- Only affects **`B01`** and **`B02`**.
- If a very large criterion has been selected (≥ weighing capacity), the corresponding command is **`ZI`**.
- If a very small criterion has been selected, this will result in a timeout error.
- With `B08 0`, the stability criterion corresponds to the default weight value and to command Z.

Example

↓	`B08`	Set to zero with FastHost stability criteria
↑	`B07␣A␣1`	Set to zero with FastHost stability criteria successfully completed

C0 – Query/Set Adjustment Settings — Level 2

Description

C0 can be used to define the type of adjustment. Other commands are required to actually trigger the adjustment procedure and define the adjusted weights.

Syntax

Commands

C0	Query of the current adjustment setting.
C0␣<*Mode*>␣<*Weight*>	Set the adjustment setting.

Balance Responses

C0␣A␣<*Mode*>␣<*Weight*>␣"<*Value*>␣<*Unit*>"	Weight value and unit specify the value of the weight for an external calibration requested from the user via the display (see command **C1**). The unit corresponds to the factory setting of host unit, e.g. gram (g) with standard balances or carat (ct) with carat balances respectively. With internal adjustment, neither weight value nor unit appears.
C0␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring).
C0␣A	Command understood and executed successfully.
C0␣L	Command understood but not executable (incorrect parameter; certified version of the balance).

Parameters

Name	Type	Values	Meaning
<*Mode*>	Integer	0	Mode = Manual The adjustment can only be triggered manually. A change in the ambient conditions has no influence on the initiation of the calibration procedure.
		1	Mode = Auto, status display AutoCal or Cal not activated When a considerable change in the ambient conditions is determined, the status display AutoCal or Cal will be activated; this means the balance will ask for adjustment.
		2	Mode = Auto, status display "AutoCal" or "Cal" flashes The sensors built into the balance have determined a considerable change in the ambient conditions. The balance requests an adjustment or at least a test (see **TSTx** commands).
<*Weight*>	Integer	0	Internal weight (factory setting)
		1	External weight

Comments

- Setting <*Mode*> = 1 and <*Weight*> = 0 corresponds to the menu setting "FACT" under "Adjustment".
- The value of the external weight can be changed in the menu of the balance under "Adjustment" (see operating instructions) or with **M19**.
- Use **C1** to start an adjustment defined with C0.
- **C2** is independent of C0.
- C0 must be reset manually; **@** has no effect.

Examples

↓	C0	Query of the current status and setting of the adjustment
↑	C0 A 2 1 " 100.000 g"	Current setting of mode is "Auto". The ambient conditions of the balance have changed so much that the balance requests an adjustment (<Mode> = 2) with the external weight (<Weight> = 1). The adjustment is initiated with the command **C1** and requires a weight of 100.000 g

↓	C0 0 1	Set adjustment setting to manual and external
↑	C0 A	Adjustment setting set

C1 – Start Adjustment According to Current Settings — Level 2

Description

`C1` is used to carry out adjustment in accordance with the **C0** settings.

Syntax

Command

`C1`	Start the adjustment according to the current setting **C0**.

First Balance Responses

`C1␣B`	The adjustment procedure has been started. Wait for second response (see comment).
`C1␣I`	Command understood but currently not executable (balance is currently executing another command). No second response follows.
`C1␣L`	Command understood but not executable (e.g. certified version of the balance). No second response follows.

Further Balance Responses

`C1␣"<`*Weight*`>␣<`*Unit*`>"`	Weight request with external adjustment.
`C1␣A`	Command understood and executed successfully.
`C1␣I`	Command understood but currently not executable (e.g. stability not attained or wrong weight loaded) .

Comments

- Commands sent to the balance during the adjustment operation are not processed and responded to in the appropriate manner until the adjustment is at an end.
- Use **@** to abort a running adjustment.

Example

↓	`C1`	Start the adjustment according to the current setting
↑	`C1␣B`	Adjustment operation started
↑	`C1␣"␣␣␣␣0.00␣g"`	Prompt to unload the balance
↑	`C1␣"␣2000.00␣g"`	Prompt to load the adjustment weight of 2000.00 g
↑	`C1␣"␣␣␣␣0.00␣g"`	Prompt to unload the balance
↑	`C1␣A`	Adjustment completed successfully

C2 – Start Adjustment with External Weight — Level 2

Description

Regardless of the **C0** setting, C2 carries out external adjustment with the reference weight defined in **M19**.

Syntax

Command

C2	Start the external adjustment. Query of the current weight used by means of the **C0** command.

First Balance Responses

C2␣B	The adjustment procedure has been started.
C2␣I	Command understood but currently not executable (balance is currently executing another command). No second response follows.
C2␣L	Command understood but not executable (e.g. adjustment with an external weight is not admissible, certified version of the balance). No second response follows.

Further Balance Responses

C2␣"<Weight>"	Prompt to unload or load the balance.
C2␣A	Command understood and executed successfully.
C2␣I	Command understood but currently not executable (e.g. stability not attained or wrong weight loaded) .

Comments

- Commands sent to the balance during the adjustment operation are not processed and responded to in the appropriate manner until the adjustment is at an end.
- Use **@** to abort a running adjustment.

Example

↓	C2	Start the external adjustment
↑	C2␣B	Adjustment operation started
↑	C2␣"␣␣␣␣␣␣0.00␣g"	Prompt to unload the balance
↑	C2␣"␣␣␣␣2000.00␣g"	Prompt to load adjustment weight 2000.00 g
↑	C2␣"␣␣␣␣␣␣0.00␣g"	Prompt to unload the balance
↑	C2␣A	Adjustment completed successfully

C3 – Start Adjustment with Internal Weight — Level 2

Description

You can use C3 to start an internal adjustment procedure.

Syntax

Command

C3	Start the internal adjustment.

First Balance Responses

C3␣B	The adjustment procedure has been started. Wait for second response.
C3␣I	Adjustment can not be performed at present as another operation is taking place. No second response follows.
C3␣L	Adjustment operation not possible (e.g. no internal weight). No second response follows.

Further Balance Responses

C3␣A	Adjustment has been completed successfully.
C3␣I	The adjustment was aborted as, e.g. stability not attained or the procedure was aborted with the C key.

Comments

- Commands sent to the balance during the adjustment operation are not processed and responded to in the appropriate manner until the adjustment is at an end.
- Use @ to abort a running adjustment.

Example

↓	C3	Start the internal adjustment
↑	C3␣B	Adjustment operation started
↑	C3␣A	Adjustment completed successfully

COM – Query/Set Communication Parameters of the built-in Serial Interface Level 2

Description

You can use this command to define the connection parameters of the permanently integrated RS232 interface for a stand-alone weighing platform.

Syntax

Commands

COM	Query of the existing interface settings.
COM␣<*Port*>␣<*Baud*>␣<*Bit*>␣<*HS*>	Set parameters of the specified interface to desired values.

Balance Responses

COM␣A␣<*Port*>␣<*Baud*>␣<*Bit*>␣<*HS*>	Current communication parameters.
COM␣A	Command executed successfully.
COM␣I	Command understood but not executable (e.g. update rate is too high for the selected baud rate, see comments).
COM␣L	Command understood but not executable (e.g. parameter incorrect).

Parameters

Name	Type	Values	Meaning
<*Port*>	Integer	0	Built-in RS232 interface
<*Baud*>	Integer	0	110 baud
		1	300 baud
		2	600 baud
		3	1200 baud
		4	2400 baud
		5	4800 baud
		6	9600 baud (factory setting)
		7	19200 baud
		8	38400 baud
<*Bit*>	Integer		Bits Parity Stop bits
		0	7 Even 1
		1	7 Odd 1
		2	7 None 1
		3	8 None 1 (factory setting)
		4	7 Even 2
		5	7 Odd 2
		6	7 None 2
		7	8 None 2
<*HS*>	Integer	0	No handshake (factory setting)
		1	Software handshake (Xoff – Xon controlled protocol)
		2	Hardware handshake (CTS – RTS controlled protocol)

Comments

- Command only available without a connected terminal.

- If an option is present in the system, the host is automatically assinged to that interface and the COM command is not available anymore.
- The answer is returned with the current settings, the settings are changed afterwards.
- No values other than those specified must be used; otherwise, uncontrollable settings may result.
- When adjusting the values, the connection parameters of the connected communication partner must also be adjusted. Otherwise, it will not be possible to establish any further communication.

Examples

↓	COM	Send current settings for interface parameters for all present interfaces
↑	COM␣B␣0␣6␣3␣0	RS-232 is set to 9600 baud, 8 bits, no parity, 1 stop bit, no handshake

↓	COM␣0␣8␣3␣0	Setting the parameters for the serial interface to 38400 baud, 8 data bits, no parity, 1 stop bit, no handshake
↑	COM␣A	Parameters successfully set to desired values

D – Display: Write Text to Display — Level 1

Description

Use D to write text to the balance display.

Syntax

Command

D␣"<*DisplayText*>"	Write text into the balance display.

Balance Responses

D␣A	Command understood and executed successfully: Text appears left-aligned in the balance display marked by a symbol, e.g. *.
D␣I	Command understood but currently not executable.
D␣L	Command understood but not executable (incorrect parameter or balance with no display) .

Parameter

Name	Type	Values	Meaning
<*DisplayText*>	String		Text on the balance display

Comments

- A symbol in the display, e.g. * indicates that the balance is not displaying a weight value.
- The maximum number of characters of "text" visible in the display depends on the balance type. If the maximum number of characters is exceeded, the text disappears on the right side.
- Quotation marks can be displayed as indicated in Chapter 2.1.3.

Examples

↓	D␣"HALLO"	Write "HALLO" into the balance display
↑	D␣A	The full text HALLO appears in the balance display

↓	D␣" "	Clear the balance display
↑	D␣A	Balance display cleared, marked by a symbol, e. g. *

See also

DW – Display: Show Weight: Show weight value on the display instead of a text

DAT – Query/Set Date — Level 2

Description

Set/Query the balance system date.

Syntax

Commands

DAT	Query of the current date of the balance.
DAT␣<*dd*>␣<*mm*>␣<*yyyy*>	Set the date of the balance.

Balance Responses

DAT␣A␣<*dd*>␣<*mm*>␣<*yyyy*>	Current date of the balance.
DAT␣A	Command understood and executed successfully.
DAT␣I	Command understood but currently not executable (balance is currently executing another command) .
DAT␣L	Command understood but not executable (incorrect parameter) .

Parameters

Name	Type	Values	Meaning
<*dd*>	Integer	01..31	Day
<*mm*>	Integer	01..12	Month
<*yyyy*>	Integer	2000..2099	Year

Comment

- The set date is retained even after the Cancel-command @.

Example

↓	DAT	Query of the current date of the balance
↑	DAT␣A␣01␣10␣2006	Current date of the balance is 1st October 2006

DW – Display: Show Weight — Level 1

Description

Writes the current weight value to the balance display using the set unit. This command is used to reset the display after using the **D** command.

Syntax

Command

DW	Switch the main display to weight mode.

Balance Responses

DW␣A	Command understood and executed successfully: Main display shows the current weight value.
DW␣I	Command understood but currently not executable.

Comment

- DW resets the balance display following a **D** command.

I0 – List All Implemented MT-SICS Commands — Level 0

Description

The I0 command lists all commands implemented in the present software. Thus, there is no need of the supplement sheet delivered with the previous versions of this manual.

All level 0 commands are listed in alphabetical order before all commands of level 1 etc.

Syntax

Command

I0	Send list of all implemented MT-SICS commands.

Balance Responses

I0␣B␣<*Level*>␣"<*Command*>" I0␣B␣<*Level*>␣"<*Command*>" I0␣B... I0␣A␣<*Level*>␣"<*Command*>"	Number of the MT-SICS level where the command belongs to 2nd (next) command implemented. ... Last command implemented.
I0␣I	Command understood but currently not executable (balance is currently executing another command) .

Parameters

Name	Type	Values	Meaning
<*Level*>	Integer	0	MT-SICS level 0 (Basic set)
		1	MT-SICS level 1 (Elementary commands)
		2	MT-SICS level 2 (Extended command list)
		3	MT-SICS level 3 (Application specific command set)
<*Command*>	String		MT-SICS command

Comments

- If a terminal and a weighing platform are being used, the command list of the terminal is output. If only a platform is being used, the command list of the platform is output.
- If you are only working with a weighing platform, the command set depends on whether an additional option is being used:
  - With option → RS232 permanent; only a limited command set is available.
  - Without option → RS232 permanent = host, normal weighing platform command set.
- If I0 lists commands that cannot be found in the manual, these are reserved commands "for internal use" or "for future use", and should not be used or altered in any way.

Example

↓	I0	Send list of commands
↑	I0␣B␣0␣"I0"	Level 0 command I0 implemented
↑	I0␣B...	...
↑	I0␣B␣0␣"@"	Level 0 command **@** (cancel) implemented
↑	I0␣B␣1␣"D"	Level 1 command **D** implemented
↑	I0␣B...	...
↑	I0␣A␣3␣SM4	Level 3 command **SM4** implemented

I1 – Query MT-SICS Level and MT-SICS Versions Level 0

Description

Query MT-SICS level and versions.

Syntax

Command

`I1`	Query of MT-SICS level and MT-SICS versions.

Balance Responses

`I1␣A␣"<Level>"␣"<V0>"␣"<V1>"␣"<V2>"␣"<V3>"`	Current MT-SICS level and MT-SICS versions.
`I1␣I`	Command understood but currently not executable.

Parameters

Name	Type	Values	Meaning
<Level>	String	0	MT-SICS level 0
		01	MT-SICS level 0 and 1
		012	MT-SICS level 0, 1 and 2
		03	MT-SICS level 0 and 3
		013	MT-SICS level 0, 1 and 3
		0123	MT-SICS level 0, 1, 2, and 3
		3	Application device with MT-SICS level 3
<V0>..<V3>	String		MT-SICS versions of the related level (0 to 3)

Comments

- The command **I14** provides more comprehensive and detailed information.

I2 – Query Balance Data (Type and Capacity) Level 0

Description

Use `I2` to query the balance data (type and capacity), including the weighing capacity. The response is output as a whole string.

Syntax

Command

`I2`	Query of the balance data.

Balance Responses

`I2␣A␣"<Type>␣<Capacity>␣<Unit>"`	Balance type and capacity.
`I2␣I`	Command understood but currently not executable (balance is currently executing another command, e.g. taring) .

Comments

- With DeltaRange balances, the last decimal place is available only in the fine range.
- The number of characters of "text" depends on the balance type and capacity.

Example

↓	`I2`	Query of the balance data
↑	`I2␣A␣"XP205␣Excellence␣Plus␣220.00900␣g"`	Balance type and capacity

I3 – Query Balance Software Version and Type Definition Number Level 0

Description

Provides the software version and the type definition number.

Syntax

Command

`I3`	Query of the balance Software version and type definition number.

Balance Responses

`I3␣A␣"<Software>␣<TDNR>"`	Balance Software version and type definition number.
`I3␣I`	Command understood but currently not executable (balance is currently executing another command, e.g. taring) .

Comments

- Only the software version of the terminal software is issued.
- If no terminal is present, the bridge software is issued instead.
- More detailed information is available with **I14**.

Example

↓	`I3`	Query of the Software version number(s) and type definition number
↑	`I3␣A␣"4.10␣10.28.0.493.142"`	4.10: Software version number 10.28.0.493.142 Type definition number

I4 – Query Serial Number — Level 0

Description

Use `I4` to query the serial number of the balance. In the case of Excellence balances, the serial number of the terminal is output.

Syntax

Command

`I4`	Query of the serial number.

Balance Responses

`I4␣A␣"<`*SNR*`>"`	Serial number.
`I4␣I`	Command not understood, not executable at present Command understood but currently not executable (balance is currently executing another command, e.g. initial zero setting).

Comments

- The serial number agrees with that on the model plate and is different for every balance.
- The serial number can be used, for example, as a device address in a network solution.
- The balance response to `I4` appears unsolicited after switching on and after the cancel command (**@**).
- Only the serial number of the terminal is issued.
- If no terminal is present, the serial number of the bridge is issued instead.
- More detailed information is available with **I14**.

Example

↓	`I4`	Query of the serial number
↑	`I4␣A␣"0123456789"`	0123456789: Serial number

I5 – Query SW-Identification Number Level 0

Description

Provides the software identification number.

Syntax

Command

I5	Query of the SW-identification number.

Balance Responses

I5␣A␣"<*SWID*>"	SW-identification number with index.
I5␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring) .

Comments

- The SW-Identification number is unique for every Software. It consists of a 8 digit number and an alphabetic character as an index
- Only the software identification number of the terminal is issued.
- If no terminal is present, the software identification number of the bridge is issued instead.
- More detailed information is available with **I14**.

Example

↓	I5	Query of the SW-identification number
↑	I5␣A␣"01234567A"	01234567A: SW-identification number with index

I10 – Query Balance ID Level 2

Description

You can use `I10` to query the balance ID or define it. This allows an individual name to be assigned to a balance.

Syntax

Commands

`I10`	Query of the current balance identification.
`I10␣"<ID>"`	Set the balance identification.

Balance Responses

`I10␣A␣"<ID>"`	Current identification the balance.
`I10␣A`	Balance identification has been set.
`I10␣I`	Balance identification can not be set at present as another operation is taking place.
`I10␣L`	Command not executed as the name is too long (max. 20 characters).

Comment

- A sequence of maximum 20 alphanumeric characters are possible as `<ID>`.
- The set balance identification is retained even after the cancel command **@**.

Example

↓	`I10`	Query of the current balance identification
↑	`I10␣A␣"My␣Balance"`	Current balance identification is "My Balance"

I11 – Query Balance Type Level 2

Description

You can use `I11` to obtain the precise type designation of a balance.

Syntax

Command

`I11`	Query of the current balance type.

Balance Responses

`I11␣A␣"<Type>"`	Current balance type.
`I11␣I`	Balance type can not be transferred at present as another operation is taking place.

Comment

- A sequence of maximum 20 alphanumeric characters is possible as *<Type>*.
- The following abbreviations used in type designations are relevant to MT-SICS:
  - DR = Delta Range.
  - DU = Dual Range.
  - /M, /A = Approved balance.

Example

↓	`I11`	Query of the current balance type
↑	`I11␣A␣"XS603SDR"`	The balance is an XS603SDR

I14 – Query Balance Information — Level 2

Description

You can use `I14` to query detailed information about the balance. All components – including optional accessories – are taken into account and the associated data is output.

Syntax

Command

`I14␣<No>`	Query of the current balance information.

Balance Responses

`I14␣A␣<No>␣<Index>␣"<Info>"`	Current balance information.
`I14␣I`	Command understood but currently not executable.
`I14␣L`	Command understood but not executable (incorrect parameter) .

Parameters

Name	Type	Values	Meaning
`<No>`	Integer	`0`	Instrument configuration
		`1`	Instrument description
		`2`	SW-identification number
		`3`	SW version
		`4`	Serial number
		`5`	TDNR number
`<Index>`	Integer		Index of instrument module
`<Info>`	String	`<Bridge>`	Weighing bridge information corresponding to `<No>`
		`<Terminal>`	Balance terminal information corresponding to `<No>`
		`<Option>`	Balance option information corresponding to `<No>`
		`<Balance>`	Balance information corresponding to `<No>`
		`<Printer>`	Printer information corresponding to `<No>`
		`<Second Display>`	Second Display information corresponding to `<No>`

Comments

- The response to the inquiry of instrument configuration can comprise one or more lines (compact balances, bridges with/without terminal etc.)
- The description of an option is the language-independent product name, e.g. "RS232-Option".
- If there are several modules of the same kind, the descriptions have an appendix, comprising of a hyphen and a number. Examples: `<Option-1>`, `<Option-2>`.

Example

↓	`I14␣0`	Query of the current balance information
↑	`I14␣B␣0␣1␣"Bridge"`	Bridge
↑	`I14␣B␣0␣2␣"Terminal"`	Terminal
↑	`I14␣A␣0␣3␣"Option"`	Option
↓	`I14␣1`	Query of the current instrument descriptions
↑	`I14␣B␣1␣1␣"X205T"`	Bridge is a X205T Example continued on next page
↑	`I14␣B␣1␣2␣"PAT"`	Excellence Plus Terminal

↑	I14␣A␣1␣3␣"RS232␣Option"	RS232 Option
↓	I14␣2	Query of the current SW-identification numbers
↑	I14␣B␣2␣1␣"11670123A"	SW-identification number of the bridge is 11680123A
↑	I14␣B␣2␣2␣"11670456B"	SW-identification number of the terminal is 11680456B
↑	I14␣A␣2␣3␣"11670789B"	SW-identification number of the option is 11680789B
↓	I14␣3	Query of the current software versions
↑	I14␣B␣3␣1␣"4.23"	Version of the bridge software is 4.23
↑	I14␣B␣3␣2␣"4.10"	Version of the terminal software is 4.10
↑	I14␣A␣3␣3␣"1.01"	Version of the RS232 option software is 1.01
↓	I14␣4	Query of the serial numbers
↑	I14␣B␣4␣1␣"0123456789"	Serial number of the bridge
↑	I14␣B␣4␣2␣"1234567890"	Serial number of the terminal
↑	I14␣A␣4␣3␣"2345678901"	Serial number of the RS232 option
↓	I14␣5	Query of the type definition numbers
↑	I14␣B␣5␣1␣"1.2.3.4.5"	type definition number of the bridge
↑	I14␣B␣5␣2␣"1.2.3.4.5"	type definition number of the terminal
↑	I14␣A␣5␣3␣"1.2.3.4.5"	type definition number of the RS232 option

I15 – Query "Power On" Time — Level 2

Description

Use `I15` to query the "Power On" time of the balance.

Syntax

Command

`I15`	Query "Power On" Time.

Balance Responses

`I15␣A␣"<minutes>"`	Time in minutes since "Power On", accuracy +/-5%.
`I15␣I`	Power On Time can not be transferred at present as another operation is taking place.

Example

↓	`I15`	Query "Power On" Time
↑	`I15␣A␣123014`	The balance was switched on approx.123,014 minutes ago.

I16 – Query Date of Next Service — Level 2

Description

You can use `I16` to query the date when the balance is next due to be serviced.

Syntax

Command

`I16`	Query Date of Next Service.

Balance Responses

`I16␣A␣<dd>␣<mm>␣<yyyy>`	Current Date of Next Service.
`I16␣I`	Date of Next Service can not be transferred at present as another operation is taking place.

Parameters

Name	Type	Values	Meaning
<dd>	Integer	01..31	Day
<mm>	Integer	01..12	Month
<yyyy>	Integer	2000..2099	Year

Example

↓	`I16`	Query Date of Next Service
↑	`I16␣A␣19␣07␣2003`	Date of Next Service is July 19, 2003

I17 – MinWeigh: Query Date of Next Test — Level 2

Description

You can use `I17` to query the date when the balance's next MinWeigh test is due to be performed.

Syntax

Command

`I17`	Query of the current next Date of MinWeigh Test.

Balance Responses

`I11␣A␣<dd>␣<mm>␣<yyyy>`	Current next Date of MinWeigh Test.
`I11␣I`	Next Date of MinWeigh Test can not be transferred at present as another operation is taking place.

Parameters

Name	Type	Values	Meaning
<dd>	Integer	01..31	Day
<mm>	Integer	01..12	Month
<yyyy>	Integer	2000..2099	Year

Comment

- MinWeigh can only be activated by a service technician.
- For additional information on MinWeigh (Minimum Weight), see the Operating Instructions for the balance.

Example

↓	`I17`	Query of the current next Date of MinWeigh Test
↑	`I17␣A␣19␣07␣2003`	Date of Next MinWeigh Test is July 19, 2003

I18 – MinWeigh: Query Method — Level 2

Description

You can use `I18` to query the methods defined for determining MinWeigh.

Syntax

Command

`I18`	Query MinWeigh Methods.

Balance Responses

`I18␣A␣<No>␣"<Method>"␣"<Parameter>"`	Current set MinWeigh Methods.
`I18␣I`	MinWeigh Method can not be transferred at present as another operation is taking place.

Parameters

Name	Type	Values	Meaning
<No>	Integer	`1..n`	Number of defined method
<Method>	String		Name of method: The length is restricted up to 20 characters
<Parameter>	String		Test parameter: The length is restricted up to 20 characters

Comment

- MinWeigh can only be activated by a service technician.
- For additional information on MinWeigh (Minimum Weight), see the Operating Instructions for the balance.

Example

↓	`I18`	Query MinWeigh Methods
↑	`I18␣B␣1␣"USP"␣"3sd,␣0.1%"`	1st Method is a USP-Method with 3 x sd and ≤ 0.1% error
↑	`I18␣B␣2␣"SOP"␣"2sd,␣1%"`	2nd Method is a SOP-Method with 2 x sd and ≤1% error
↑	`I18␣A␣3␣""␣""`	3rd Method is not defined

I19 – MinWeigh: Query Limits — Level 2

Description

Use `I19` to query the tares defined for the MinWeigh methods, along with their Minimum Weight limits.

Syntax

Command

`I19`	Query of the current MinWeigh limits.

Balance Responses

`I19␣A␣<MNo>␣<No>␣<MinWeigh>␣<Tare>`	Current MinWeigh limits.
`I19␣I`	MinWeigh limits can not be transferred at present as another operation is taking place.

Parameters

Name	Type	Values	Meaning
<MNo>	Integer	1..n	Number of defined method
<No>	Integer	0..n	Number of defined pair of limits
<MinWeigh>	Float		Determined Minimum Weight value depending on following Tare weigtt
<Tare>	Float		Tare weight used for MinWeigh determination

Comment

- MinWeigh can only be activated by a service technician.
- For additional information on MinWeigh (Minimum Weight), see the Operation Instructions for the balance.

Example

↓	`I20`	Query of the current MinWeigh Limits
↑	`I19␣B␣1␣0␣0.0100␣50.0000`	Method 1, value pair 0, MinWeigh is 10 mg with tare 50 g
↑	`I19␣B␣1␣1␣0.0200␣120.0000`	Method 1, value pair 1, MinWeigh is 20 mg with tare120 g
↑	`I19␣B␣1␣2␣0.1000␣500.0000`	Method 1, value pair 2, MinWeigh is 100 mg with tare 500 g
↑	`I19␣B␣2␣0␣0.0110␣51.0000`	Method 2, value pair 0, MinWeigh is 11 mg with tare 51 g
↑	`I19␣B␣2␣1␣0.0210␣121.0000`	Method 2, value pair 1, MinWeigh is 21 mg with tare 121 g
↑	`I19␣B␣2␣2␣0.1010␣501.0000`	Method 2, value pair 2, MinWeigh is 101 mg with tare 501 g
↑	`I19␣B␣3␣0␣0.0120␣52.0000`	Method 3, value pair 0, MinWeigh is 12 mg with tare 52 g
↑	`I19␣B␣3␣1␣0.0220␣122.0000`	Method 3, value pair 1, MinWeigh is 22 mg with tare122 g
↑	`I19␣A␣3␣2␣0.1020␣502.0000`	Method 3, value pair 2, MinWeigh is 102 mg with tare 502 g

I20 – Query MinWeigh Parameter Level 2

Description

Use `I20` to query the balance parameter settings for the MinWeigh methods.

Syntax

Command

`I20`	Query of the current MinWeigh Parameter.

Balance Responses

`I20␣A␣<Method>␣<Index>␣<Parameter>`	Current balance type.
`I20␣I`	Balance type can not be transferred at present as another operation is taking place.

Parameters

Name	Type	Values	Meaning
<Method>	Integer	0..n	Number of defined method
<Index>	Integer	0	Weighing mode, see **M01**
		1	Environment, see **M02**
		2	Measured value release, see **M29**
		3	AutoZero, see **M03**
<Parameter>	Integer		Parameter for the corresponding weight setting

Comment

- The parameters correspond to the values provided for the corresponding MT-SICS commands:
  - Weighing mode, see **M01**.
  - Environment, see **M02**.
  - Measured value release, see **M29**.
  - AutoZero, see **M03**.

Example

↓	`I20`	Query of the current balance type
↑	`I20␣B␣1␣0␣0`	Method 1, Weighing mode "Universal"
↑	`I20␣B␣1␣1␣2`	Method 1, Environment "Standard"
↑	`I20␣B␣1␣2␣1`	Method 1, Measured value release "Quick"
↑	`I20␣B␣1␣3␣1`	Method 1, AutoZero "On"
↑	`I20␣B␣2␣0␣1`	Method 2, Weighing mode "Dispensing"
↑	`I20␣B␣2␣1␣3`	Method 2, Environment "Unstable"
↑	`I20␣B␣2␣2␣0`	Method 2, Measured value release "Very quick"
↑	`I20␣A␣2␣3␣0`	Method 2, AutoZero "Off"

I28 – Query Level Sensor — Level 2

Description

You can use `I28` to determine whether or not the balance is level.

Syntax

Command

`I28`	Query of the level sensor.

Balance Responses

`I28␣A␣<`*`Status`*`>`	Current state of the level sensor.
`I28␣I`	Level sensor can not be transferred at present as another operation is taking place or there is a failure at the level sensor.

Parameter

Name	Type	Values	Meaning
<*Status*>	Integer	0	Level
		1	Not level

Comment

- Also supported by stand-alone platforms. During stand-alone operation, the backlighting for the level sensor is not activated.
- If no level sensor is present, an "`ES`" response is generated.

Example

↓	`I28`	Query of the current state of the level sensor
↑	`I28␣A␣1`	Weighing bridge is out of level

K – Keys: Set Configuration — Level 1

Description

With the K command, the behavior of the terminal keys may be configured: first, the K command controls whether a key invokes its corresponding function or not and second, it configures whether an indication of which key has been pressed or released is sent to the host interface or not.

Using this functionality, an application running on a connected system (e.g. a PC or PLC) may make use of the balance terminal to interact with the balance operator.

Syntax

Commands

K␣<*Mode*>	Set configuration.

Balance Responses

K␣A[␣<*FuncNr*>]	Command understood and executed successfully. Mode 4: Function with <FuncNr> was invoked by pressing the corresponding key and executed successfully.
K␣I[␣<*FuncNr*>]	Command understood but currently not executable (balance is actually in menu or input mode). Mode 4: Function with <FuncNr> by pressing the corresponding key, but it could not be successfully executed (e.g. calibration was aborted by user or a negative value was tared).
K␣L	Command understood but not executable (incorrect or no parameter).

Additional Responses in Mode 3:

K␣<*Event*>␣<*KeyNr*>	Key <KeyNr> has issued an <Event>.

Additional Responses in Mode 4:

K␣B␣<*FuncNr*>	Function with <FuncNr> was invoked and started; the execution needs time to complete.

Parameters

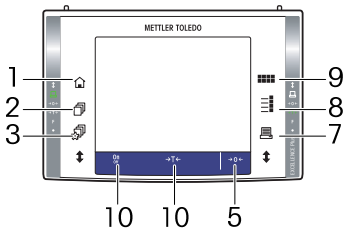
Name	Type	Values	Meaning
<*Mode*>	Integer	1	Functions are executed, no indications are sent (factory setting)
		2	Functions are not executed, no indications are sent
		3	Functions are not executed, indications are sent
		4	Functions are executed, indications are sent
<*Event*>	Char	R	Key was pressed and held around 2 seconds
		C	Key was released (after being pressed shortly or for 2 second)
<*FuncNr*>	Integer	0	Adjustment
		1	Tare
		2	Zero
		3	Data transfer to printing device
		4..6	Reserved for future use
		7	Test
<*KeyNr*>	Integer	1	⌂ Home
		2	User profile (XP balances only)
		3	Settings (XP balances only)
		4	reserved

		5	→0← Zero
		6	reserved
		7	Transfer
		8	Configure actual applications
		9	Applications
		10	→T← Tare On/Off

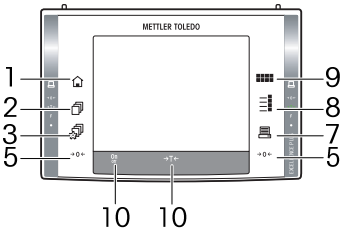
Comments

- There is no key number assigned to the door keys; therefore, no response is invoked upon pressing one of these keys.
- `K␣1` is the factory setting (default value).
- `K␣1` active after balance switched on and after the cancel command `@`.
- Only one `K` mode is active at one time.
- The mapping of the key numbers on the different terminals are displayed below:

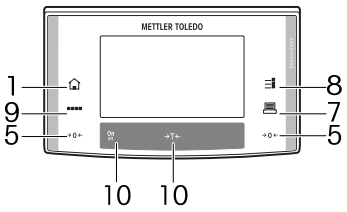
XP Analytical Balances



XP Precision Balances



XS Balances



Example

When a code with a long press is sent, new key commands will not be accepted.

↓	`K␣4`	Set mode 4: when a key is pressed, execute the corresponding function and send the function number as a response
↑	`K␣A`	Command executed successfully
↑	`K␣B␣1`	The taring function has been started → taring active
↑	`K␣A␣1`	Taring completed successfully
↑	`K␣B␣1`	The taring function has been started → taring active
↑	`K␣I␣1`	Taring not completed successfully, taring aborted (e.g. tried to tare a negative value)

M01 – Query/Set Weighing Mode Level 2

Description

You can use `M01` to set the weighing mode or query the current setting.

Syntax

Commands

`M01`	Query of the current weighing mode.
`M01␣<WeighingMode>`	Set the weighing mode.

Balance Responses

`M01␣A␣<WeighingMode>`	Current weighing mode.
`M01␣A`	Command understood and executed successfully.
`M01␣I`	Command understood but currently not executable.
`M01␣L`	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<WeighingMode>	Integer	0	Normal weighing/Universal
		1	Dosing
		2	Sensor mode
		3	Check weighing

Comment

- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not @).

Example

↓	`M01␣0`	Set the weighing mode to normal
↑	`M01␣A`	Weighing mode is set

M02 – Query/Set Environment Level 2

Description

You can use M02 to adjust the balance so that it is optimized for the local ambient conditions, or to query the current value.

Syntax

Commands

M02	Query of the current environment.
M02␣<*Environment*>	Set the environment.

Balance Responses

M02␣A␣<*Environment*>	Current environment.
M02␣A	Command understood and executed successfully.
M02␣I	Command understood but currently not executable.
M02␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<*Environment*>	Integer	0	Very stable
		1	Stable
		2	Standard
		3	Unstable
		4	Very unstable

Comments

- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not @).
- Not all balances offer the complete range of settings. If a setting is made that is not supported by the balance, an error massage is issued (M02␣L).

Example

↓	M02␣3	Set the environment to unstable
↑	M02␣A	Environment is set

M03 – Query/Set AutoZero Level 2

Description

Use M03 to switch the AutoZero function on or off and query its current status.

Syntax

Commands

M03	Query of the current AutoZero function.
M03␣<*AutoZero*>	Set the AutoZero function.

Balance Responses

M03␣A␣<*AutoZero*>	Current AutoZero function
M03␣A	Command understood and executed successfully.
M03␣I	Command understood but currently not executable.
M03␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<*AutoZero*>	Integer	0	AutoZero is switched off
		1	AutoZero is switched on

Comment

- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not @).

Example

↓	M03␣1	Switch on the AutoZero function
↑	M03␣A	AutoZero function is activated

M04 – Query/Set SmartSens Functions Level 2

Description

You can use M04 to assign functions to the contact-free sensors (SmartSens) in the top left and right-hand corners of the terminal and/or the external sensors available as an option (ErgoSens), or to call up the function settings.

Syntax

Commands

M04	Query of the current SmartSens functions.
M04␣<*No*>␣<*Function*>	Set the SmartSens function.

Balance Responses

M04␣B␣<*No*>␣<*Function*> M04␣B... M04␣A␣<*No*>␣<*Function*>	Current setting of the first SmartSens function. ... Current setting of the last SmartSens or ErgoSens function.
M04␣A	Command understood and executed successfully.
M04␣I	Command understood but currently not executable.
M04␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning		
<*No*>	Integer	0, 1	left SmartSens, right SmartSens		
		2, 3	ErgoSense 1 (Aux 1), ErgoSense 2 (Aux 2)		
<*Function*>	Integer	0	Off	**Values**	**Meaning**
		1	Door	16	1/10d
		2	Left Door	17	1/100d
		3	Right Door	18	1/1000d
		4	Zero	19	MPlus
		5	Tare	20	Result
		6	Print	21	OK
		7	ID1	22	Set 100 percent
		8	ID2	23	Set variable reference percent
		9	ID3	24	Fix pieces
		10	ID4	25	Start density
		11	ID5	26	Start dynamic weighing
		12	ID6	27	Ioniser
		13	Header	28	1/2d
		14	Footer	29	1/5d
		15	PreTare	30	Transfer

Comment

- The parameter settings will be saved and the only way to reset the default values will be via MT-SICS or by means of a balance master reset (not @).

Examples

↓	M04␣0␣2	Set the left SmartSens to 2nd function (e.g. door)
↑	M04␣A	Left SmartSens function set

↓	M04	Query of the current SmartSens functions
↑	M04␣B␣0␣0	Left SmartSens: No function
↑	M04␣B␣1␣4	Right SmartSens: Zero
↑	M04␣B␣2␣0	ErgoSens Aux 1: No function
↑	M04␣A␣3␣0	ErgoSens Aux 2: No function

M05 – Query User Profile — Level 2

Description

You can use `M05` to query the user profile name.

Syntax

Command

`M05`	Query of the available user profiles.

Balance Responses

`M05␣B␣<`*`No`*`>␣"<`*`Profile`*`>"`
`M05␣B...`
`M05␣A␣<`*`No`*`>␣"<`*`Profile`*`>"`
	First user profile.
	…
	Last user profile.

`M05␣I`	Command understood but currently not executable.
`M05␣L`	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<No>	Integer	0.. max. user profiles	User profile number
<Profile>	String		User profile name

Example

↓	`M05`	Query of the available user profiles
↑	`M05␣B␣0␣"Home"`	Default user profile is called Home
↑	`M05␣B␣1␣"Julie Evans"`	1st user profile is called Julie Evans
↑	`M05␣B␣2␣"Method 1"`	2nd user profile is called Method 1
↑	`M05␣B␣3␣"Statistics 1"`	3rd user profile is called Statistics 1
↑	`M05␣B␣4␣"User 4"`	4th user profile is called User 4
↑	`M05␣B␣5␣"User 5"`	5th user profile is called User 5
↑	`M05␣B␣6␣"User 6"`	6th user profile is called User 6
↑	`M05␣A␣7␣"User 7"`	7th user profile is called User 7

M06 – Query/Set Current User Profile Level 2

Description

You can use M06 to define which user profile the balance should user, or to query the current profile setting.

Syntax

Commands

M06	Query of the current user profile.
M06␣<*No*>	Set the user profile.

Balance Responses

M06␣A␣<*No*>	Current user profile.
M06␣A	Command understood and executed successfully.
M06␣I	Command understood but currently not executable.
M06␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<*No*>	Integer	0.. max. user profiles	User profile number

Comment

- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not @).

Example

↓	M06␣3	Activate the 3rd user profile
↑	M06␣A␣3	3rd user profile is set

M07 – Query/Set AutoDoor Level 2

Description

You can use M07 to set the AutoDoor function or query the current setting. The autodoor function automatically opens and closes the doors of the glass draft shield as soon as this is necessary.

Syntax

Commands

M07	Query of the current AutoDoor setting.
M07␣<*AutoDoor*>	Set the AutoDoor function.

Balance Responses

M07␣A␣<*AutoDoor*>	Current AutoDoor setting.
M07␣A	Command understood and executed successfully.
M07␣I	Command understood but currently not executable.
M07␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<*AutoDoor*>	Integer	0	AutoDoor function switched off
		1	AutoDoor function switched on

Comment

- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not @).
- For further details, see the section titled "Door function" in the "User Settings" chapter of the Manual for the balance.

Example

↓	M07␣1	AutoDoor function switched on
↑	M07␣A	AutoDoor function is set.

M08 – Display: Query/Set Brightness Level 2

Description

You can use M08 to set the brightness of the terminal display or query the current setting.

Syntax

Commands

M08	Query of the current display brightness.
M08␣<*Brightness*>	Set the display brightness.

Balance Responses

M08␣A␣<*Brightness*>	Current display brightness.
M08␣A	Command understood and executed successfully.
M08␣I	Command understood but currently not executable.
M08␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<*Brightness*>	Integer	20..100	Display brightness in %

Comment

- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not @).
- Technically speaking, it is possible to enter values with decimal places, but the balance will omit these and will only store the integer value.

Examples

↓	M08␣55	Set the display brightness to 55%
↑	M08␣A	Display brightness is set

↓	M08	Query of the current display brightness
↑	M08␣A␣60	Current display brightness is set to 60%

M09 – Display: Query/Set Contrast Level 2

Description

You can use M09 to set the contrast of the terminal display or query the current setting.

Syntax

Commands

M09	Query of the current display contrast.
M09␣<*Contrast*>	Set the display contrast.

Balance Responses

M09␣A␣<*Contrast*>	Current display contrast.
M09␣A	Command understood and executed successfully.
M09␣I	Command understood but currently not executable.
M09␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<*Contrast*>	Integer	0..100	Display contrast in %

Comment

- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not @).
- Technically speaking, it is possible to enter values with decimal places, but the balance will omit these and will only store the integer value.

Example

↓	M09	Query of the current display contrast
↑	M09␣A␣60	Current display contrast is set to 60%

M10 – Beeper: Query/Set Display Mode Level 2

Description

You can use `M10` to set or query the display mode of XS balances.

Syntax

Commands

`M10`	Query the actual display mode.
`M10␣<DisplayMode>`	Set the display mode.

Balance Responses

`M10␣A␣<DisplayMode>`	Current display mode.
`M10␣A`	Command understood and executed successfully.
`M10␣I`	Command understood but currently not executable.
`M10␣L`	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<DisplayMode>	Integer	1	First mode: Display weight and SmartTrac
		2	Second mode: Display weight
		3	Third mode: Display weight, info fields and SmartTrac

Comment

- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not @).
- It is also possible to change the display mode by means of the display function key on the terminal. Please refere to the Operating Instructions for Excellence XS Balances.
- This command is only supported by XS balances.

Example

↓	`M10`	Query of the current display mode
↑	`M10␣A␣3`	Currently, the terminal displays weight and SmartTrac

M11 – Beeper: Query/Set Volume Level 2

Description

You can use `M11` to set the volume of the terminal beeper or query the current setting.

Syntax

Commands

`M11`	Query of the current beeper volume.
`M11␣<BeeperVolume>`	Set the beeper volume.

Balance Responses

`M11␣A␣<BeeperVolume>`	Current beeper volume.
`M11␣A`	Command understood and executed successfully.
`M11␣I`	Command understood but currently not executable.
`M11␣L`	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<BeeperVolume>	Integer	0..100	Beeper volume in %

Comment

- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not `@`).
- Technically speaking, it is possible to enter values with decimal places, but the balance will omit these and will only store the integer value.

Example

↓	`M11`	Query of the current beeper volume
↑	`M11␣A␣50`	Current beeper volume is set to 50%

M12 – Beeper: Beep — Level 2

Description

This command triggers an acoustic beep signal.

Syntax

Command

M12␣<*BeeperVariant*>	Trigger beep.

Balance Responses

M12␣A	Command understood and executed successfully.
M12␣I	Command understood but currently not executable.
M12␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<*BeeperVariant*>	Integer	0	Beep variant 1 (e.g. 1x beep)
		1	Beep variant 2 (e.g. high sound)
		2	Beep variant 3 (e.g. deep sound)

Comment

- You can set the volume of the beeper using **M11**. However, this setting will not necessarily work on all balances.

Example

↓	M12␣1	Trigger a beep variant 2
↑	M12␣A	Beep has been triggered

M13 – Query/Set Touch Function Level 2

Description

Use M13 to switch the display's touch function on and off, or query the current setting. The function keys and terminal keys (see **K** command) are not affected.

Syntax

Commands

M13	Query of the current touch function.
M13␣<*TouchFunction*>	Set the touch function.

Balance Responses

M13␣A␣<*TouchFunction*>	Current touch function.
M13␣A	Command understood and executed successfully.
M13␣I	Command understood but currently not executable.
M13␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<*TouchFunction*>	Integer	0	Touch function is reduced on function keys and keys beside of screen
		1	Touch function of screen is switched on

Comment

- For additional information on the terminal display, please see the Manuals for the balances.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not **@**).

Examples

↓	M13␣1	Switch on the touch function
↑	M13␣A	Touch function is activated

M14 – List Available Languages — Level 2

Description

Lists all languages available on the balance.

Syntax

Command

M14	Query of the available languages.

Balance Responses

M14␣B␣<*No*>␣"<*Language*>" M14␣B... M14␣A␣<*No*>␣"<*Language*>"	First language. … Last language.
M14␣I	Command understood but currently not executable.
M14␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning		
<*No*>	Integer	0..max	Language number		
<*Language*>	Integer		Language name		
		Values	**Meaning**	**Values**	**Meaning**
		0	English	7	Reserved
		1	German	8	Polish
		2	French	9	Reserved
		3	Spanish	10	Czech
		4	Italian	11	Hungarian
		5	Russian	12..15	Reserved
		6	Japanese		

Example

↓	M14	Query of the available languages
↑	M14␣B␣0␣"English"	No 0 language is English
↑	M14␣B␣1␣"Deutsch"	No 1 language is Deutsch
↑	M14␣B␣2␣"Français"	No 2 language is Français
↑	M14␣B␣3␣"Español"	No 3 language is Español
↑	M14␣B␣4␣"Italiano"	No 4 language is Italiano
↑	M14␣B␣5␣"Russian"	No 5 language is Russian
↑	M14␣B␣6␣"Nihongo"	No 6 language is Nihongo
↑	M14␣B␣8␣"Polski"	No 8 language is Polski
↑	M14␣B␣10␣"Cestina"	No 10 language is Cestina
↑	M14␣A␣11␣"Magyar"	No 11 language is Magyar

M15 – Query/Set Language — Level 2

Description

Use `M15` to set the required language for the terminal dialog boxes or to query the current language setting.

Syntax

Commands

`M15`	Query of the current language.
`M15␣<No>`	Set the language.

Balance Responses

`M15␣A␣<No>`	Current language.
`M15␣A`	Command understood and executed successfully.
`M15␣I`	Command understood but currently not executable.
`M15␣L`	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<No>	Integer	0.. max. languages	Language number

Comment

- Language number: Number of the language according to the available languages (see command **M14**).
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not **@**).

Examples

↓	`M15␣3`	Set the language number 3
↑	`M15␣A`	Language 3 is set

↓	`M15`	Query of the current language
↑	`M15␣A␣0`	Language is set to the default language

See also

M14 – List Available Languages

M16 – Query/Set Standby Mode Level 2

Description

You can use M16 to set the delay for switching to standby mode, or to query the current setting.

Syntax

Commands

M16	Query of the current standby mode.
M16␣<*StandbyMode*>	Set the standby mode.

Balance Responses

M16␣A␣<*StandbyMode*	Current standby mode.
M16␣A	Command understood and executed successfully.
M16␣I	Command understood but currently not executable.
M16␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<*StandbyMode*>	Integer	0	Standby mode switched off
		3	Standby 30 min.
		4	Standby 60 min.
		5	Standby 120 min.
		6	Standby 240 min.

Comment

- The balance switches to standby mode if it is not operated within 15 min. Operating the balance includes pressing a key, significant changes in weight, item counter > 0 or interface commands.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not @).

Examples

↓	M16␣4	Set the standby mode to 60 min.
↑	M16␣A	Standby mode is set

↓	M16	Query of the current standby mode
↑	M16␣A␣0	Current standby mode is switched off

M17 – ProFACT: Query/Set single Time Criteria — Level 2

Description

Use M17 to set the time and days when a proFACT adjustment should be executed automatically, or to query the current setting.

Syntax

Commands

M17	Query of the current proFACT time criteria.
M17␣<*hh*>␣<*mm*>␣<*ss*>␣<*WeekDay*>	Set the proFACT time criteria.

Balance Responses

M17␣A␣<*hh*>␣<*mm*>␣<*ss*>␣<*WeekDay*>	Current proFACT time criteria.
M17␣A	Command understood and executed successfully.
M17␣I	Command understood but currently not executable.
M17␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<*hh*>	Integer	00..23	Hours
<*mm*>	Integer	00..59	Minutes
<*ss*>	Integer	00..59	Seconds
<*WeekDay*>	Integer	0	Time criteria is switched off
		2^0 = 1	Monday
		2^1 = 2	Tuesday
		2^2 = 4	Wednesday
		2^3 = 8	Thursday
		2^4 = 16	Friday
		2^5 = 32	Saturday
		2^6 = 64	Sunday

Comment

- The days of the week are written in binary code. Combinations of different days are expressed as the sum of the individual days.
- Only one time criterion can be set using M17; all other times are deactivated. **M32** must be used if you wish to set several different times.
- If two or more times are set (**M32** command), resulting in an M17 query, an M17␣I response is generated.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not **@**).

Examples

↓	M17␣12␣00␣00␣5	Set the proFACT time criteria to Monday and Wednesday (5 = 1 + 4) at 12:00 h
↑	M17␣A	ProFACT time criteria is set:

↓	M17	Query of the current proFACT time criteria
↑	M17␣A␣12␣00␣00␣127	The balance will currently be adjusted every day (127 = 1 + 2 + 4+ 8 + 16 + 32 + 64) at 12:00 h

M18 – ProFACT/FACT: Query/Set Temperature Criterion Level 2

Description

Use `M18` to set the temperature criterion for triggering a proFACT adjustment, or to query the current value.

Syntax

Commands

`M18`	Query of the current proFACT/FACT temperature criterion.
`M18␣<TemperatureCriterion>`	Set the proFACT/FACT temperature criterion.

Balance Responses

`M18␣A␣<TemperatureCriterion>`	Current standby mode.
`M18␣A`	Command understood and executed successfully.
`M18␣I`	Command understood but currently not executable.
`M18␣L`	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<TemperatureCriterion>	Integer	0	Temperature criterion is switched off
		1	1st setting is activated
		2	2nd setting is activated
		3	3rd setting is activated
		4	4th setting is activated

Comment

- Temperature difference (Δ temp.) is defined as the criterion. The balance is automatically adjusted if the temperature of the balance changes by the defined temperature difference.
- The settings depend on the balance model and must, therefore, be checked in relation to the balance concerned. For additional information, see Operating Instructions>System settings>proFACT fully automatic adjustment function.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not @).

Examples

↓	`M18␣1`	Set the proFACT/FACT temperature criterion to the 1st setting
↑	`M18␣A`	1st setting is activated

M19 – Query/Set Adjustment Weight Level 2

Description

You can use M19 to set your external adjustment weight, or to query the current weight setting.

Syntax

Commands

M19	Query of the current adjustment weight.
M19␣<*Value*>␣<*Unit*>	Set the adjustment weight.

Balance Responses

M19␣A␣<*Value*>␣<*Unit*>	Current adjustment weight.
M19␣A	Command understood and executed successfully.
M19␣I	Command understood but currently not executable.
M19␣L	Command understood but not executable (incorrect parameter) or adjustment weight is to low.

Parameters

Name	Type	Values	Meaning
<*Value*>	Float	> 1% of capacity	Value of the adjustment weight
<*Unit*>	String		Weight unit of the adjustment weight = defined unit of the balance

Comment

- The adjustment weight must be entered in the defined unit of the balance. This unit can be found by entering an inquiry command (M19 without arguments).
- The reference weight should be greater than 10% of the balance capacity; it must be greater than 1% of the capacity.
- Use C2 to begin the adjustment procedure with the set weight.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not @).

Example

↓	M19	Query of the current adjustment weight
↑	M19␣A␣100.123␣g	Current adjustment weight is 100.123 g

M20 – Query/Set Test Weight Level 2

Description

You can use M20 to define your external test weight or query the currently weight setting.

Syntax

Commands

M20	Query of the current external test weight.
M20␣<*Value*>␣<*Unit*>	Set the external test weight.

Balance Responses

M20␣A␣<*Value*>␣<*Unit*>	Current external test weight.
M20␣A	Command understood and executed successfully.
M20␣I	Command understood but currently not executable.
M20␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<*Value*>	Float	> 10 digits	Value of the external test weight
<*Unit*>	String		Weight unit of the external test weight = defined unit of the balance

Comment

- The adjustment weight must be entered in the defined unit of the balance. This unit can be found by entering an inquiry command (M20 without arguments).
- Use **TST2** to begin the test procedure with the set weight.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not **@**).

Example

↓	M20	Query of the current external test weight
↑	M20␣A␣100.123␣g	Current external test weight is 100.123 g

M21 – Query/Set Unit Level 2

Description

Use `M21` to set the required weighing unit or query the current setting.

Syntax

Commands

`M21`	Query of the current unit.
`M21␣<Des>␣<Unit>`	Set the unit(s).

Balance Responses

`M21␣B␣<Des>␣<Unit>`
`M21␣B...`
`M21␣A␣<Des>␣<Unit>`
	Current first unit.
	…
	Current last unit.

`M21␣A`	Command understood and executed successfully.
`M21␣I`	Command understood but currently not executable.
`M21␣L`	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning		
<Des>	Integer	0	Host unit, to MT-SICS (volatile Memory)		
		1	Display unit, used on the terminal screen		
		2	Info unit, used in the info field on the terminal screen		
<Unit>	Integer	0	Gram	g	
		1	Kilogram	kg	
		2	reserved		
		3	Milligram	mg	
		4	Microgram	µg	
		5	Carat	ct	
		6	reserved		
		7	Pound avdp	lb	
		8	Ounce avdp	oz	
		9	Ounce troy	ozt	
		10	Grain	GN	
		11	Pennyweight	dwt	
		12	Momme	mom	
		13	Mesghal	msg	
		14	Tael Hongkong	tlh	
		15	Tael Singapore	tls	
		16	Tael Taiwan	tlt	
		17	reserved		
		18	Tola	tola	
		19	Baht	baht	
		25	no unit	--	
		26	Piece	PCS	available with application "Counting"
		27	Percent	%	available with application "Percent"

		28	Custom unit 1	cu1	available if custom unit 1 is switched on (**M22**)
		29	Custom unit 2	cu2	available if custom unit 2 is switched on (**M22**)

Comment

- All **S*** commands (except **S*U**) are given in Host unit according to the definition of the MT-SICS. Only weight units are accepted as Host unit.
- It is not possible to use "no unit" for the displayed unit.
- In the event of a power failure, the host unit is lost and, following a restart, the weighing unit is displayed as "g".
- The units and/or their notation may be different in older software versions.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not **@**).

Examples

↓	M21␣0␣1	Set the unit to 1 kg
↑	M21␣A	Unit is set

↓	M21	Query of the current unit
↑	M21␣B␣0␣0 M21␣B␣1␣3 M21␣A␣2␣5	Current host unit is "g" Current display unit is "mg" Current info unit is "carat"

M22 – Query/Set Custom Unit Definitions — Level 2

Description

You can use M22 to set your own custom unit or query the currently defined custom unit.

Syntax

Commands

M22	Query of the current custom unit definitions.
M22␣<*No*>␣<*Formula*>␣<*Factor*>␣"<*Unit*>"␣<*Rounding*>	Set the custom unit(s).

Balance Responses

M22␣B␣<*No*>␣<*Formula*>␣<*Factor*>␣"<*Unit*>"␣<*Rounding*> M22␣B... M22␣A␣<*No*>␣<*Formula*>␣<*Factor*>␣"<*Unit*>"␣<*Rounding*>	Current first custom unit. ... Current last custom unit.
M22␣A	Command understood and executed successfully.
M22␣I	Command understood but currently not executable.
M22␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<*No*>	Integer	0.. max. units	Number of custom unit
<*Formula*>	Integer	0	(net weight) x factor
		1	factor/(net weight)
<*Factor*>	Float		Factor
<*Unit*>	String		Unit name (max. 4 characters)
<*Rounding*>	Float		Rounding step

Comment

- To query or define a custom unit, it must be switched on (**M21**).
- The parameter settings will be saved and the only way to reset the default values will be via MT-SICS or by means of a balance master reset (not **@**).

Example

↓	M22	Query of the current custom unit definitions
↑	M22␣B␣1␣0␣15.5␣"sfr"␣0.05	Current first custom unit is (net weight) x 15.5 sfr, rounded to 0.05
	M22␣A␣2␣1␣25.4␣"h1"␣0.1	Current second custom unit is 25.4/(net weight) h1, rounded to 0.1

M23 – Query/Set Readability, 1d/xd — Level 2

Description

Use `M23` to set how many digits of the weighing result should be displayed or output and whether the value should be rounded, or to query the current value setting.

Syntax

Commands

`M23`	Query of the current readability.
`M23␣<Readability>`	Set the readability.

Balance Responses

`M23␣A␣<Readability>`	Current readability.
`M23␣A`	Command understood and executed successfully.
`M23␣I`	Command understood but currently not executable.
`M23␣L`	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<Readability>	Integer	0	1 d
		1	10 d
		2	100 d
		3	1000 d
		4	2 d
		5	5 d

Comment

- It is the balance model that determines which parameters can be changed.
- The readability is specified in digits [d] – this is the smallest increment a balance may display.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not @).

Example

↓	`M23␣1`	Set the readability to 10 d
↑	`M23␣A`	Readability is set

M24 – Query/Set Print Key Function Level 2

Description

Use M24 to set the print key function or query the current setting.

Syntax

Commands

M24	Query of the current print key function.
M24␣<*PrintKeyFunction*>	Set the print key function.

Balance Responses

M24␣A␣<*PrintKeyFunction*>	Current print key function.
M24␣A	Command understood and executed successfully.
M24␣I	Command understood but currently not executable.
M24␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<*PrintKeyFunction*>	Integer	0	Print stable weight
		1	Print weight immediately
		2	No print function

Comment

- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not @).

Example

↓	M24␣1	Set the print key function to "print weight immediately"
↑	M24␣A	Print key function is set

M25 – List Applications Level 2

Description

Use `M25` to list all the applications available on the balance.

Syntax

Command

`M25`	Query of the available applications.

Balance Responses

`M25␣B␣<No>␣"<Application>"`
`M25␣B...`
`M25␣A␣<No>␣"<Application>"`
	First application.
	…
	Last application.

`M25␣I`	Command understood but currently not executable.
`M25␣L`	Command understood but not executable.

Parameters

Name	Type	Values	Meaning
<No>	Integer	0.. max. applications	Application number
<Application>	String		Application name

Comment

- It is the balance model that determines which parameters can be used.

Example

↓	`M25`	Query of the available applications
↑	`M25␣B␣0␣"Weighing"`	Default application is Weighing
↑	`M25␣B␣1␣"Piececounting"`	Application 1 is Counting
↑	`M25␣B␣2␣"Percent"`	Application 2 is Percent
↑	`M25␣B␣3␣"Formulation"`	Application 3 is Formulation
↑	`M25␣B␣7␣"Density"`	Application 7 is Density
↑	`M25␣B␣9␣"Diff.weighing"`	Application 9 is DiffWeigh
↑	`M25␣B␣11␣"Statistic"`	Application 11 is Statistic
↑	`M25␣A␣17␣"LabX Client"`	Application 17 is LabX Client

M26 – Query/Set Current Application Level 2

Description

Use `M26` to select the required application or query the current selection.

Syntax

Commands

`M26`	Query of the current application selection.
`M26␣<No>`	Set the application number.

Balance Responses

`M26␣A␣<No>`	Current application selection.
`M26␣A`	Command understood and executed successfully.
`M26␣I`	Command understood but currently not executable.
`M26␣L`	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<No>	Integer	0.. max. applications	Application number

Comment

- Application number: Number of the application according to the application list (command **M25**).

Example

↓	`M26␣3`	Set the application number 3
↑	`M26␣A`	Application 3 is set

See also

M25 – List Applications

M27 – Query Adjustment History — Level 2

Description

Use `M27` to call up the adjustment history.

Syntax

Command

`M27`	Query of the adjustment history.

Balance Responses

`M27␣B␣<No>␣<DD>␣<MM>␣<YYYY>␣<hh>␣<mm>␣<Mode>␣"<Wgt>"`
`M27␣B...`
`M27␣A␣<No>␣<DD>␣<MM>␣<YYYY>␣<hh>␣<mm>␣<Mode>␣"<Wgt>"`
	1st adjustment entry.
	...
	last adjustment entry.

`M27␣I`	Command understood but currently not executable.
`M27␣L`	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<No>	Integer	0.. max. entries	Number of the adjustment entry
<DD>	Integer	01..31	Date, day
<MM>	Integer	01..12	Date, month
<YYYY>	Integer		Date, year
<hh>	Integer	0..23	Time, hour
<mm>	Integer	0..59	Time, minute
<Mode>	Integer	0	Internal adjustment
		1	External adjustment
<Wgt>	Float		Weight of the adjustment weight used

Example

↓	`M27`	Query of the adjustment history
↑	`M27␣B␣1␣01␣01␣2006␣08␣26␣0␣""`	1st adjustment, performed at 01.01.2006, 08:26 h, internal adjustment
↑	`M27␣B␣2␣14␣12␣2005␣14␣30␣1␣"200.1234␣g"`	2nd adjustment, performed at 14.12.2005, 14.30 h, external adjustment, weight 200.1234 g
↑	`M27␣A␣3␣14␣12␣2005␣8␣26␣1␣"200.1234␣g"`	3rd adjustment, performed at 14.12.2005, 08:26 h, external adjustment, weight 200.1234 g

M29 – Query/Set Value Release Level 2

Description

Use M29 to define the weight value release or query the current setting.

Syntax

Commands

M29	Query of the current value release setting.
M29␣<*ValueRelease*>	Set the value release.

Balance Responses

M29␣A␣<*ValueRelease*>	Current value release.
M29␣A	Command understood and executed successfully.
M29␣I	Command understood but currently not executable.
M29␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<*ValueRelease*>	Integer	0	Very fast
		1	Fast
		2	Reliable and fast
		3	Reliable
		4	Very reliable

Comments

- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not @).
- Not all balances offer the complete range of settings. If a setting is made that is not supported by the balance, an error massage is issued (M29␣L).

Example

↓	M29␣3	Set the value release to "reliable"
↑	M29␣A	Value release is set

M32 – ProFACT: Query/Set Time Criteria — Level 2

Description

You can use M32 to set several times at which an automatic proFACT adjustment procedure should be carried out, or query the current settings. The days of the week are defined with **M33**.

Syntax

Commands

M32	Query of the current proFACT time criteria.
M32␣<*No*>␣<*hh*>␣<*mm*>␣<*status*>	Set the proFACT time criteria.

Balance Responses

M32␣B␣<*No*>␣<*hh*>␣<*mm*>␣<*status*> … M32␣A␣<*No*>␣<*hh*>␣<*mm*>␣<*status*>	Current proFACT time criteria.
M32␣A	Command understood and executed successfully.
M32␣I	Command understood but currently not executable.
M32␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<*No*>	Integer	0..3	FACT time index
<*hh*>	Integer	00..23	Hours
<*mm*>	Integer	00..59	Minutes
<*status*>	Integer	0	Time deactivated (off)
		1	Time activated (on)

Comment

- Only 1 time criterion can be set using **M17**; all other times are permanently deactivated. M32 and **M33** must be used if you wish to set several different times.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not **@**).

Examples

↓	M32␣2␣12␣00␣1	FACT time 2 set to 12:00 and activated (on).
↑	M32␣A	ProFACT time criteria is set:

↓	M32	Query of the current proFACT time criteria
↑	M32␣B␣1␣09␣00␣1	The balance will currently be adjusted at 9:00 h, 12:00 and 15:00 h
↑	M32␣B␣2␣12␣00␣1	
↑	M32␣A␣3␣15␣00␣1	

M33 – ProFACT: Query/Set Weekday — Level 2

Description

You can use M33 to set the days of the week on which a proFACT adjustment procedure should be carried out, or to query the current settings. The times for each are defined using **M32**.

Syntax

Commands

M33	Query of the current proFACT Weekday.
M33␣<*Weekday*>	Set the proFACT Weekday.

Balance Responses

M33␣A␣<*Weekday*>	Current proFACT Weekday.
M33␣A	Command understood and executed successfully.
M33␣I	Command understood but currently not executable.
M33␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<*WeekDay*>	Integer	0	Time criteria is switched off
		2^0 = 1	Monday
		2^1 = 2	Tuesday
		2^2 = 4	Wednesday
		2^3 = 8	Thursday
		2^4 = 16	Friday
		2^5 = 32	Saturday
		2^6 = 64	Sunday

Comment

- The days of the week are written in binary code. Combinations of different days are expressed as the sum of the individual days.
- Only 1 time criterion can be set using **M17**; all other times are deactivated. **M32** and M33 must be used if you wish to set several different times.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not **@**).

Examples

↓	M33␣5	Time adjustments are made on Mondays and Wednesdays (5 = 1 + 4)
↑	M33␣A	ProFACT Weekday is set.

M34 – MinWeigh: Query/Set Method — Level 2

Description

Use `M34` to select the MinWeigh method you wish to work with, or query the currently set MinWeigh method.

Syntax

Commands

`M34`	Query of the current MinWeigh Method.
`M34␣<Method>`	Set the MinWeigh Method.

Balance Responses

`M34␣A␣<Method>`	Current MinWeigh Method.
`M34␣A`	Command understood and executed successfully.
`M34␣I`	Command understood but currently not executable.
`M34␣L`	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<Method>	Integer	0	MinWeigh deactivated
		1	Method 1 activated
		2	Method 2 activated
		3	Method 3 activated

Comment

- MinWeigh can only be activated by a service technician.
- For additional information on Minimum Weight (MinWeigh), see the Operating Instructions of the balance.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not `@`).

Examples

↓	`M34␣1`	Set the MinWeigh Method to 1.
↑	`M34␣A`	MinWeigh Method 1 is set.

M35 – Query/Set Zeroing Mode at Start-Up Level 2

Description

You can use M35 to save the last zero. Following a power failure, the balance will resume operation with the saved zero. In normal mode (M35␣0), the balance specifies a new zero reference point at start-up as soon as a stable condition has been achieved.

Syntax

Commands

M35	Query of the current Zeroing Mode at Start-Up.
M35␣<*Mode*>	Set the Zeroing Mode at Start-Up.

Balance Responses

M35␣A␣<*Mode*>	Current Zeroing Mode at Start-Up.
M35␣A	Command understood and executed successfully.
M35␣I	Command understood but currently not executable.
M35␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<*Mode*>	Integer	0	Normal mode
		1	Start with saved zero or save last zero

Comment

- If the mode is set to 1 when the balance is started up, the fail-safe, saved zero is used.
- For certification reasons, this command may only be executed on normal balances. Certifiable balances do not have this function.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not @).

Example

↓	M35␣1	Save the last zero and use it at following start-up
↑	M35␣A	Start-up Zeroing Mode is set

M36 – Query/Set LevelControl Setup Level 2

Description

Use `M36` to define the LevelControl and its responses, or query the current settings.

Syntax

Commands

`M36`	Query of the current LevelControl settings.
`M36␣<Status>␣<Text>␣<Sound>`	Set the LevelControl.

Balance Responses

`M36␣A␣<Status>␣<Text>␣<Sound>`	Current settings of the LevelControl.
`M36␣A`	Command understood and executed successfully.
`M36␣I`	Command understood but currently not executable.
`M36␣L`	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<Status>	Integer	0	LevelControl switched off
		1	LevelControl switched on
<Text>	Integer	0	Warning text: Off
		1	Warning text: Once
		2	Warning text: Repeat
<Sound>	Integer	0	Warning beep: Off
		1	Warning beep: Once
		2	Warning beep: Repeat

Comment

- This command is not supported by weighing platforms without terminal.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not @).

Example

↓	`M36`	Query of the current LevelControl settings
↑	`M36␣A␣1␣1␣1`	LevelControl is switched on with warning text once and beep once

See Also

I28 – Query Level Sensor

M37 – Query/Set Draft Shield Door Opening Width — Level 2

Description

Use M37 to set the draft shield door opening width or query the current setting.

Syntax

Commands

M37	Query of the current draft shield door opening width.
M37␣<*DoorOpening*>	Set the draft shield door opening width.

Balance Responses

M37␣A␣<*DoorOpening*>	Current setting of the draft shield door opening width.
M37␣A	Command understood and executed successfully.
M37␣I	Command understood but currently not executable.
M37␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<*DoorOpening*>	Integer	25	Door opening 25%
		50	Door opening 50%
		75	Door opening 75%
		100	Door open

Comment

- Only the values available in the set-up of the balance are accepted (25%, 50%, 75%, and 100%).
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not @).

Example

↓	M37	Query of the current draft shield door opening width
↑	M37␣A␣75	Door opening width is set to 75%

See Also

WS – Query/Set Position of Draft Shield Doors

M39 – SmartTrac: Query/Set Graphic Level 2

Description

You can use M39 to set the type of SmartTrac graphic (used weighing range graphic) or query the current setting.

Syntax

Command

M39	Query of the current SmartTrac Graphic.
M39␣<*SmartTrac*>	Set the SmartTrac Graphic.

Balance Responses

M39␣A␣<*SmartTrac*>	Current setting of the SmartTrac Graphic.
M39␣A	Command understood and executed successfully.
M39␣I	Command understood but currently not executable.
M39␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning (Nominal =0)	Meaning (Nominal > 0)
<*SmartTrac*>	Integer	0	No SmartTrac	Weighing-in graphic
		1	Round SmartTrac	Round weighing in SmartTrac
		2	SmartTrac bar	Weighing-in SmartTrac bar
		3	SmartTrac measuring beaker	SmartTrac crosshairs

Comments

- If the application contains a nominal value that is > 0, the used weighing range graphics mentioned above are automatically displayed as weighing-in graphics listed in the left-most column.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not @).

Example

↓	M39␣2	Set the SmartTrac bar
↑	M39␣A	SmartTrac bar has been set

M40 – Query/Set Inner Draft Shield Door Opening Width Level 2

Description

Use M37 to set the inner draft shield door opening width or query the current setting.

Syntax

Commands

M40	Query of the current inner draft shield door opening width.
M40␣<*DoorOpening*>	Set the inner draft shield door opening width.

Balance Responses

M40␣A␣<*DoorOpening*>	Current setting of the inner draft shield door opening width.
M40␣A	Command understood and executed successfully.
M40␣I	Command understood but currently not executable.
M40␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<*DoorOpening*>	Integer	25	Door opening 25%
		50	Door opening 50%
		75	Door opening 75%
		100	Door open

Comment

- Only the values available in the set-up of the balance are expected (25%, 50%, 75%, and 100%)
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset (not @).

Example

↓	M40	Query of the current inner draft shield door opening width
↑	M40␣A␣50	Door opening width is set to 50%

See Also

WS – Query/Set Position of Draft Shield Doors

P100 – Printer Interface: Send Text — Level 2

Description

You can use `P100` to send text to the printer.

Syntax

Command

`P100␣"<PrintOutText>"`	Send text to the printer.

Balance Responses

`P100␣A`	Command understood and executed successfully.
`P100␣I`	Command understood but currently not executable (balance is currently executing another command, e.g. taring).
`P100␣L`	Command understood but not executable (e.g. printer is not switched on, not configured or not connected).

Parameter

Name	Type	Values	Meaning
<PrintOutText>	String		Print out "text" on the printer (24 characters/line)

Comments

- A sequence of maximum 24 characters is admissible as text.
- The command `P100␣"<Text>"` has no influence on the function of the printer as a record printer.
- The Printer has to be connected, switched on and configured.

Example

↓	`P100␣"Hallo"`	Print out "Hallo" on the printer
↑	`P100␣A`	Print out has been started

P101 – Printer Interface: Send Weight Value — Level 2

Description

Use `P101` to send a stable weight value to the printer. This corresponds to the command **`S`**.

Syntax

Command

`P101`	Send stable weight value to the printer, corresponds to the command **`S`**.

Balance Responses

`P101␣A`	Command understood and executed successfully.
`P101␣I`	Command understood but currently not executable (balance is currently executing another command, e.g. taring).
`P101␣L`	Command understood but not executable (e.g. printer is not connected).

Comments

- The command `P101` has no influence on the function of the printer as a record printer.
- The draft shield closes with this command, when the "Door function" is set on "Automatic". It opens after sending a stable weight.
- The Printer has to be connected, switched on and configured.

Example

↓	`P101`	Send stable weight value to the printer
↑	`P101␣A`	Print out has been started

P102 – Printer Interface: Send Weight Value Immediately Level 2

Description

Use `P102` to send the weight value to the printer immediately. This corresponds to the command **`SI`**.

Syntax

Command

`P102`	Send weight value to the printer immediately, corresponds to the command **`SI`**.

Balance Responses

`P102␣A`	Command understood and executed successfully.
`P102␣I`	Command understood but currently not executable (balance is currently executing another command, e.g. taring).
`P102␣L`	Command understood but not executable (e.g. printer is not connected).

Comments

- The command `P102` has no influence on the function of the printer as a record printer.
- The draft shield does not close with this command.
- The Printer has to be connected, switched on and configured.

Example

↓	`P102`	Send weight value to the printer immediately
↑	`P102␣A`	Print out has been started

PW – Piece Counting: Query/Set Piece Weight — Level 3

Description

Use PW to set the reference weight of 1 piece, which you can then use for the piece counting application. You can also use PW to query the reference weight that you have set using , , or PW.

Syntax

Commands

PW	Query of the piece weight for the piece counting application.
PW␣<*PieceWeightValue*>␣<*Unit*>	Set the piece weight for the according preset value. The unit should correspond to the unit actually set under host unit.

Balance Responses

PW␣A␣<*PieceWeightValue*>␣<*Unit*>	Current piece weight value in unit actually set under host unit.
PW␣A	Command understood and executed successfully.
PW␣I	Command understood but currently not executable (balance is currently executing another command).
PW␣L	Command understood but not executable (e.g. piece counting application is not active or parameter is incorrect).

Comments

- This command can only be used with the application "piece counting". For details on available applications and how the activate them see also **M25** and **M26**.
- The range of the piece weight value is specified to the balance type.
- If a reference weight has been defined, the display unit automatically changes to PCS and can be queried with **S*U**.

Example

↓	PW␣20.00␣g	Set the piece weight of the piece counting application to 20.00 g
↑	PW␣A	Piece weight value is set

PWR – Power On/Off — Level 2

Description

Use PWR to switch the balance on or off. When it is switched off, standby mode is activated.

Syntax

Command

PWR␣<*OnOff*>	Switch the balance on or off.

Balance Responses

PWR␣A	Balance has been switched off successfully.
PWR␣A I4␣A␣"<*SNR*>"	Balance with the serial number "SNR" has been switched on successfully (see also **I4** command).
PWR␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring).
PWR␣L	Command understood but not executable.

Parameter

Name	Type	Values	Meaning
<*OnOff*>	Integer	0	Set the balance to standby mode
		1	Switch the balance on

Comment

- The balance response to **I4** appears unsolicited after switching the balance on.

S – Send Stable Weight Value — Level 0

Description

Use S to send a stable weight value, along with the host unit, from the balance to the connected communication partner via the interface .

Syntax

Command

S	Send the current stable net weight value.

Balance Responses

S␣S␣*<WeightValue>*␣*<Unit>*	Current stable weight value in unit actually set under host unit.
S␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring, or timeout as stability was not reached).
S␣+	Balance in overload range.
S␣-	Balance in underload range.

Comments

- The duration of the timeout depends on the balance type.
- To send the stable weight value in actually displayed unit, see **SU** command.
- The draft shield closes with this command, when the "Door function" is set on "Automatic". It opens after sending a stable weight.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Balance Responses with Weight Value.

Example

↓	S	Send a stable weight value
↑	S␣S␣␣␣␣100.00␣g	The current, stable ("S") weight value is 100.00 g

SI – Send Weight Value Immediately — Level 0

Description

Use SI to immediately send the current weight value, along with the host unit, from the balance to the connected communication partner via the interface.

Syntax

Command

SI	Send the current net weight value, irrespective of balance stability.

Balance Responses

S␣S␣*<WeightValue>*␣*<Unit>*	Stable weight value in unit actually set under host unit.
S␣D␣*<WeightValue>*␣*<Unit>*	Non-stable (dynamic) weight value in unit actually set under host unit.
S␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring).
S␣+	Balance in overload range.
S␣-	Balance in underload range.

Comments

- The balance response to the command SI is the last internal weight value (stable or dynamic) before receipt of the command SI.
- To send weight value immediately in actually displayed unit, see **SIU** command.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Balance Responses with Weight Value.

Example

↓	SI	Send current weight value
↑	S␣D␣␣␣␣129.07␣g	The weight value is unstable (dynamic, "D") and is currently 129.07 g

SIR – Send Weight Value Immediately and Repeat — Level 0

Description

Use SIR to immediately send the current weight value, along with the host unit, from the balance to the connected communication partner via the interface, but this time on a continuous basis.

Syntax

Command

SIR	Send the net weight values repeatedly, irrespective of balance stability.

Balance Responses

S␣S␣<*WeightValue*>␣<*Unit*>	Stable weight value in unit actually set under host unit.
S␣D␣<*WeightValue*>␣<*Unit*>	Non-stable (dynamic) weight value in unit actually set under host unit.
S␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring).
S␣+	Balance in overload range.
S␣-	Balance in underload range.

Comments

- SIR is overwritten by the commands **S**, **SI**, **SR**, **@** and hardware break and hence cancelled.
- The number of weight values per second can be configured using **UPD**.
- To send weight value in actually displayed unit, see **SIRU** command.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Balance Responses with Weight Value.

Example

↓	SIR	Send current weight values at intervals
↑	S␣D␣␣␣␣129.07␣g	The balance sends stable ("S") or unstable ("D") weight values at intervals
↑	S␣D␣␣␣␣129.08␣g	
↑	S␣S␣␣␣␣129.09␣g	
↑	S␣S␣␣␣␣129.09␣g	
↑	S␣D␣␣␣␣114.87␣g	
↑	S␣...	

SIRU – Send Weight Value with Currently Displayed Unit Immediately and RepeatLevel 2

Description

Use SIRU to immediately send the current weight value, along with the displayed unit, from the balance to the connected communication partner via the interface and on a continuous basis.

Syntax

Command

SIRU	Send the current net weight value with currently displayed unit, irrespective of balance stability and repeat.

Balance Responses

S␣S␣<*WeightValue*>␣<*Unit*>	Stable weight value in currently displayed unit.
S␣D␣<*WeightValue*>␣<*Unit*>	Non-stable (dynamic) weight value in currently displayed unit.
S␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring).
S␣+	Balance in overload range.
S␣-	Balance in underload range.

Comment

- As the **SIR** command, but with currently displayed unit.
- The number of weight values per second can be configured using **UPD**.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Balance Responses with Weight Value.

Example

↓	SIRU	Query of the current weight value with currently displayed unit
↑	S␣D␣␣␣␣␣12.34␣lb	Non-stable (dynamic) weight value of 12.34 lb
↑	S␣D␣␣␣␣␣12.44␣lb	Non-stable (dynamic) weight value of 12.44 lb
↑	S␣D␣␣␣␣␣12.43␣lb	Non-stable (dynamic) weight value of 12.43 lb

SIS – Send NetWeight Value with Actual Unit and Weighing Status — Level 2

Description

Use `SIS` to immediately send the current net weight value to the connected communication partner via the interface, along with the host unit and other information regarding the weighing status.

Syntax

Command

`SIS`	Send the current net weight value with actual unit and weighing status.

Balance Responses

`SIS␣A␣<Status>␣"<NetWeight>"␣<Unit1>␣<Readability>␣<Step>␣<Approv>␣<Info>`	At status 0 to 3.
`SIS␣A␣<Status>␣"<Error>"`	At status 4 to 6.
`SIS␣I`	Command understood but currently not executable.

Parameters

Name	Type	Values	Meaning	
<Status>	Integer	0	Stable weight value	
		1	Dynamic weight value	
		2	Stable inaccurate weight (MinWeigh)	
		3	Dynamic inaccurate weight (MinWeigh)	
		4	Overload	
		5	Underload	
		6	Error, not valid	
<Netweight>	Float		Net weight value	
<Unit1>	Integer	0	Gram	g
		1	Kilogram	kg
		2	reserved	
		3	Milligram	mg
		4	Microgram	µg
		5	Carat	ct
		6	reserved	
		7	Pound avdp	lb
		8	Ounce avdp	oz
		9	Ounce troy	ozt
		10	Grain	GN
		11	Pennyweight	dwt
		12	Momme	mom
		13	Mesghal	msg
		14	Tael Hongkong	tlh
		15	Tael Singapore	tls
		16	Tael Taiwan	tlt
		17	reserved	
		18	Tola	tola

		20	Baht baht
<Readability>	Integer	0…6	Amount of decimal places
<Step>	Integer	1	"1" step
		2	"2" step
		5	"5" step
		10	"10" step
		20	"20" step
		50	"50" step
		100	"100" step
<Approv>	Integer	0	Standard balance, Not approved
		1	e = d
		10	e = 10 d
		100	e = 100 d
		-1	Unapproved with * in display
<Info>	Integer	0	Without tare
		1	Net with weighed tare
		2	Net with stored tare

Comment

- Can not be used with custom unit, piece counting (PCS) or percent weighing (%).
- This command has no effect on the other **S*** commands.
- The units and/or their notation may be different in older software versions.
- Relates to the host output interfaces. The weight unit is the host unit, not the displayed unit.
- Also supplies a weigh value for zeroing, adjusting and taring, and in the menu.

Examples

↓	SIS	Query of the current weight value with actual host unit and weighing status
↑	SIS␣A␣0␣"100.00"␣0␣2␣1␣10␣0	100.0(0) g

↓	SIS	Query of the current weight value
↑	SIS␣A␣1␣"10.0"␣5␣2␣50␣0␣2	10.0 ct, carat value, with step 50, in coarse range, with stored tare and unstable

↓	SIS	Query of the current weight value
↑	SIS␣A␣6␣"Error7"	Error, not valid

↓	SIS	Query of the current weight value
↑	SIS␣A␣4␣""	Overload

SIU – Send Weight Value with Currently Displayed Unit Immediately Level 2

Description

Use `SIU` to immediately send the current weight value, along with the displayed unit, from the balance to the connected communication partner via the interface.

Syntax

Command

`SIU`	Send the current net weight value with currently displayed unit, irrespective of balance stability.

Balance Responses

`S␣S␣<WeightValue>␣<Unit>`	Stable weight value in currently displayed unit.
`S␣D␣<WeightValue>␣<Unit>`	Non-stable (dynamic) weight value in currently displayed unit.
`S␣I`	Command understood but currently not executable (balance is currently executing another command, e.g. taring).
`S␣+`	Balance in overload range.
`S␣-`	Balance in underload range.

Comment

- As the **`SI`** command, but with currently displayed unit.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Balance Responses with Weight Value.

Example

↓	`SIU`	Query of the current weight value with currently displayed unit
↑	`S␣D␣␣␣␣␣12.34␣lb`	Non-stable (dynamic) weight value is 12.34 lb

SIUM – Send Weight Value with Currently Displayed Unit and MinWeigh Information Immediately — Level 2

Description

Use SIUM to immediately send the current weight value, along with the displayed unit and MinWeigh information, from the balance to the connected communication partner via the interface.

Syntax

Command

SIUM	Send the current net weight value with currently displayed unit and MinWeigh Information, irrespective of balance stability.

Balance Responses

S␣<*Status*>␣<*WeightValue*>␣<*Unit*>	Weight value in currently displayed unit.
S␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring).
S␣+	Balance in overload range.
S␣-	Balance in underload range.

Parameters

Name	Type	Values	Meaning
<*Status*>	String	S	Stable, net >= MinWeigh limit
		D	Dynamic, net >= MW limit
		M	Stable, net < MinWeigh limit
		N	Dynamic, net < MW limit
<*WeightValue*>	Float		Weight value
<*Unit*>	String		Currently displayed unit

Comment

- As the **SI** command, but with currently displayed unit and MinWeigh information.
- If the MinWeigh function is switched off, or is not available on the balance, it corresponds to the command **SIU**.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Balance Responses with Weight Value.

Example

↓	SIUM	Query of the current weight value with currently displayed unit
↑	S␣D␣␣123.34␣mg	Dynamic net weight displayed, greater than MW limit

↓	SIUM	Query of the current weight value with currently displayed unit
↑	S␣M␣␣123.34␣mg	Stable net weight displayed, less than MinWeigh limit

↓	SIUM	Query of the current weight value with currently displayed unit
↑	S␣N␣␣123.34␣mg	Dynamic net weight displayed, less than MW limit

SM0 – Dynamic Weighing: Cancel all SMx Commands Level 3

Description

You can use SM0 to cancel any SMx commands that are in progress.

Syntax

Command

SM0	Cancel all SMx commands (except **SM4**).

Balance Responses

SM0␣A	Command understood and executed successfully.
SM0␣I	Command understood but currently not executable (balance is currently executing another command).
SM0␣L	Command understood but not executable (e.g. dynamic weighing application is not active or parameter is incorrect).

Comments

- This command can only be used with the application "dynamic weighing". For details on available applications and how the activate them see also **M25** and **M26**.
- Can only be executed if no weight is being applied respectively the "dynamic weighing" window has disappeared.

SM1 – Dynamic Weighing: Start Immediately and Send the Result Level 3

Description

Use SM1 to start dynamic weighing immediately. The result is transferred via the interface once the weighing time has elapsed.

Syntax

Command

SM1	Start dynamic weighing immediately and transfer the result.

First Balance Responses

SM␣A	Dynamic weighing has been started, wait for second response. During the weighing operation, e.g. until the second response, no further commands can be executed.
SM␣I	Command understood but currently not executable (balance is currently executing another command). No second response follows.
SM␣L	Command understood but not executable (e.g. dynamic weighing application is not active or parameter is incorrect). No second response follows.

Further Balance Responses

SM␣*␣<*WeightValue*>␣<*Unit*>	Transfer of the result completed successfully. Weight value corresponds to the result of the measurement cycle. The unit corresponds to the current weight unit in the display.
SM␣+	Abort, overload during the measurement cycle.
SM␣-	Abort, underload during the measurement cycle.
SM␣I	The dynamic weighing has been aborted, e.g. with the "C" button.

Comments

- This command can only be used with the application "dynamic weighing". For details on available applications and how the activate them see also **M25** and **M26**.
- The SM1 command does not test any minimum load.
- Set AutoStart off (see command **A07**), set AutoTare off (see command **A08**).
- The balance does not perform stability or plausibility checks for the start.
- The balance must be loaded, weighing starts immediately after SM1.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Balance Responses with Weight Value.

Example

↓	SM1	Start a dynamic weighing immediately and transfer the result
↑	SM␣A	Command understood, result follows
↑	SM␣*␣␣␣␣␣23.76␣g	Result of the dynamic weighing is 23.76 g

SM2 – Dynamic Weighing: Start After a Minimum Load Is Exceeded and Send Result Level 3

Description

Use SM2 to start dynamic weighing if the applied weight exceeds the specified minimum load. The result is transferred via the interface once the weighing time has elapsed.

Syntax

Command

SM2	Start a dynamic weighing automatically after the defined minimum load is exceeded and transfer the result (once).

First Balance Responses

SM␣A	Dynamic weighing has been started, wait for second response. During the weighing operation, e.g. until the second response, no further commands can be executed.
SM␣I	Command understood but currently not executable (balance is currently executing another command). No second response follows.
SM␣L	Command understood but not executable (e.g. dynamic weighing application is not active or parameter is incorrect). No second response follows.

Further Balance Responses

SM␣*␣*<WeightValue>*␣*<Unit>*	Transfer of the result completed successfully. Weight value corresponds to the result of the measurement cycle. The unit corresponds to the current weight unit in the display.
SM␣+	Abort, overload during the measurement cycle.
SM␣-	Abort, underload during the measurement cycle.
SM␣I	The dynamic weighing has been aborted, e.g. with the "C" button.

Comments

- This command can only be used with the application "dynamic weighing". For details on available applications and how the activate them see also **M25** and **M26**.
- Set AutoStart on (see command **A07**).
- The minimum load can be defined in the dynamic weighing application setup, in the menu AutoStart.
- The single start standby is cancelled by the **SM0** and **@** commands before start of the weighing.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Balance Responses with Weight Value.

Example

↓	SM2	Start a dynamic weighing after the defined minimum load is exceeded and transfer the result
↑	SM␣A	Command understood, result follows
↑	SM␣*␣␣␣␣␣24.30␣g	Result of the dynamic weighing is 24.30 g

SM3 – Dynamic Weighing: Start After a Minimum Load Is Exceeded, Send Result and Repeat Level 3

Description

Use SM3 to start several dynamic weighing procedures in succession if the applied weights exceed the specified minimum load. The results are transferred via the interface once the weighing time has elapsed.

Syntax

Command

SM3	Start dynamic weighing automatically.

First Balance Responses

SM␣A	Dynamic weighing has been started, wait for second response. During the weighing operation, no further commands can be executed.
SM␣I	Command understood but currently not executable (balance is currently executing another command). No second response follows.
SM␣L	Command understood but not executable (e.g. dynamic weighing application is not active or parameter is incorrect). No second response follows.

Further Balance Responses

SM␣*␣*<WeightValue>*␣*<Unit>	Transfer of the result completed successfully. Weight value corresponds to the result of the measurement cycle. The unit corresponds to the current weight unit in the display. Further results follow when the start condition is fulfilled again.
SM␣+	Abort, overload during the measurement cycle.
SM␣-	Abort, underload during the measurement cycle.
SM␣I	The dynamic weighing has been aborted, e.g. with the "C" button.

Comments

- This command can only be used with the application "dynamic weighing". For details on available applications and how the activate them see also **M25** and **M26**.
- Set AutoStart on (see command **A07**).
- The minimum load can be defined in the dynamic weighing application setup in the menu AutoStart.
- The recurring establishment of the start standby is cancelled by the **SM0**, **SM1**, **SM2** and **@** commands.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Balance Responses with Weight Value.

Example

↓	SM3	Start dynamic weighing when weight drops below and afterwards above the defined minimum load, transfer the result and repeat the process.
↑	SM␣A	Command understood, results follow
↑	SM␣*␣␣␣␣␣25.83␣g	Result of the 1st dynamic weighing is 25.83 g
↑	SM␣*␣␣␣␣␣22.91␣g	Result of the 2nd dynamic weighing is 22.91 g
↑	SM␣*␣␣␣␣␣24.05␣g	Result of the 3rd dynamic weighing is 24.05 g

SM4 – Dynamic Weighing: Query/Set Time Interval — Level 3

Description

Use SM4 to set the time interval for a dynamic weighing procedure, or query the current time setting.

Syntax

Commands

SM4	Query of the time interval for the dynamic weighing application.
SM4␣<*DynWeighTimeInterval*>	Set the time interval for the dynamic weighing application.

Balance Responses

SM4␣A␣<*DynWeighTimeInterval*>	Current time interval for the data acquisition of the dynamic weighing.
SM4␣A	Command understood and executed successfully; time interval set.
SM4␣I	Command understood but currently not executable (balance is currently executing another command).
SM4␣L	Command understood but not executable (e.g. dynamic weighing application is not active or parameter is incorrect).

Parameter

Name	Type	Values	Meaning
<*DynWeighTimeInterval*>	Integer	0..99	Time interval in seconds

Comments

- This command can only be used with the application "dynamic weighing". For details on available applications and how the activate them see also **M25** and **M26**.
- The time interval preset by the SM4 command is automatically set to the actual value indicated in the balance's display when the time interval parameter is selected manually.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS, manually in the application settings, or by means of a balance master reset (not **@** or **SM0**).
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Balance Responses with Weight Value.

Example

↓	SM4␣10	Set the time interval for the data acquisition of the dynamic weighing to 10 seconds
↑	SM4␣A	Current time interval is set to 10 seconds

SNR – Send Stable Weight Value and Repeat on Weight Change — Level 2

Description

Use SNR to send the current stable weight value following a predefined minimum change in weight and on a continuous basis. The weight value is sent, along with the host unit, from the balance to the connected communication partner via the interface.

Syntax

Command

SNR [␣<*PresetValue*>␣<*Unit*>]	Send the current stable weight value and repeat after each deflection greater or equal to the preset value (see comment).

Balance Responses

S␣S␣<*WeightValue*>␣<*Unit*> S␣S␣<*WeightValue*>␣<*Unit*> ...	Current stable weight value (1st value). Next stable weight value after preset deflection (2nd value). ...
S␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring, or timeout as stability was not reached).
S␣L	Command understood but not executable (incorrect parameter).
S␣+	Balance in overload range.
S␣-	Balance in underload range.

Parameters

Name	Type	Values	Meaning
<*PresetValue*>	Float	1 d .. capacity	Preset minimum deflection load
<*Unit*>	String		Weight unit

Comment

- The preset value is optional. If no value is defined, the deflection depends on balance readability as follows:

Readability	Min. Deflection
0.001 mg	0.001 g
0.01 mg	0.01 g
0.1 mg	0.1 g
0.001 g	1 g
0.01 g	1 g
0.1 g	1 g
1 g	5 g

- SNR is overwritten by the commands **S, SI, SIR, @** and hardware break and hence cancelled.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Balance Responses with Weight Value.

Example

↓	SNR␣50␣g	Send the current stable weight value and repeat after each deflection greater or equal to the preset value of 50 g
↑	S␣S␣␣␣␣␣12.34␣g	1st weight value is 12.34 g
↑	S␣S␣␣␣␣␣67.89␣g	2nd weight value is 67.89 g

SNRU – Send Stable Weight Value with Currently Displayed Unit and Repeat on Weight Change Level 2

Description

Use SNRU to send the current stable weight value following a predefined minimum change in weight and on a continuous basis. The weight value is sent, along with the displayed unit, from the balance to the connected communication partner via the interface.

Syntax

Command

SNRU[␣<*PresetValue*>␣<*Unit*>]	Send the current stable weight value with the currently displayed unit and repeat after each deflection greater or equal to the preset value (see comment).

Balance Responses

S␣S␣<*WeightValue*>␣<*Unit*> S␣S␣<*WeightValue*>␣<*Unit*> ...	Current stable weight value (1st value). Next stable weight value after preset deflection (2nd value). ...
S␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring, or timeout as stability was not reached).
S␣L	Command understood but not executable (incorrect parameter).
S␣+	Balance in overload range.
S␣-	Balance in underload range.

Parameter

Name	Type	Values	Meaning
<*PresetValue*>	Float	1 d .. capacity	Preset minimum deflection load
<*Unit*>	String		Weight unit

Comment

- As the **SNR** command, but with current displayed unit.
- The preset value is optional. If no value is defined, the deflection depends on balance readability as follows:

Readability	Min. Deflection
0.001 mg	0.001 g
0.01 mg	0.01 g
0.1 mg	0.1 g
0.001 g	1 g
0.01 g	1 g
0.1 g	1 g
1 g	5 g

- SNRU is overwritten by the commands **S**, **SI**, **SIR**, **@** and hardware break and hence cancelled.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Balance Responses with Weight Value.

Example

↓	SNRU␣50␣g	Send the current stable weight value with the currently displayed unit and repeat after each deflection greater or equal to the preset value of 50 g
↑	S␣S␣␣␣␣␣12.34␣g	1st weight value is 12.34 g
↑	S␣S␣␣␣␣␣67.89␣g	2nd weight value is 67.89 g

SR – Send Weight Value on Weight Change (Send and Repeat) Level 1

Description

Use SR to send the current weight values following a predefined minimum change in weight and on a continuous basis. The weight value is sent, along with the host unit, from the balance to the connected communication partner via the interface.

Syntax

Command

SR [␣<*PresetValue*>␣<*Unit*>]	Send the current stable weight value and then continuously after every weight change greater or equal to the preset value a non-stable (dynamic) value followed by the next stable value, range = 1 d to maximal capacity. If no preset value is entered, the weight change must be at least 12.5% of the last stable weight value, minimum = 30 d.

Balance Responses

S␣S␣<*WeightValue*>␣<*Unit*>	Current, stable weight value in unit actually set as host unit, 1st weight change.
S␣D␣<*WeightValue*>␣<*Unit*>	Dynamic weight value in unit actually set as host unit.
S␣S␣<*WeightValue*>␣<*Unit*>	Next stable weight value in unit actually set as host unit.
S␣I	Command understood but currently not executable (balance is currently executing another command, e.g. zero setting, or timeout as stability was not reached).
S␣L	Command understood but not executable (incorrect parameter).
S␣+	Balance in overload range.
S␣-	Balance in underload range.

Comments

- SR is overwritten by the commands **S, SI, SIR, @** and hardware break and hence cancelled.
- In contrast to SR, **SNR** only sends stable weight values.
- If, following a non-stable (dynamic) weight value, stability has not been reached within the timeout interval, the response **S␣I** is sent and then a non-stable weight value. Timeout then starts again from the beginning.
- The preset value can be entered in any by the balance accepted unit.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Balance Responses with Weight Value.

Example

↓	SR␣10.00␣g	Send the current stable weight value followed by every load change of 10 g
↑	S␣S␣␣␣␣100.00␣g	Balance stable
↑	S␣D␣␣␣␣115.23␣g	100.00 g loaded
↑	S␣S␣␣␣␣200.00␣g	Balance again stable

See also

S – Send Stable Weight Value
SI – Send Weight Value Immediately
SIR – Send Weight Value Immediately and Repeat
SNR - Send Stable Weight Value and Repeat on Weight Change

SRU – Send Stable Weight Value with Currently Displayed Unit on Weight ChangeLevel 2

Description

Use SRU to send the current weight values following a predefined minimum change in weight and on a continuous basis. The weight value is sent, along with the currently displayed unit, from the balance to the connected communication partner via the interface.

Syntax

Command

SRU[␣<*WeightValue*>␣<*Unit*>]	Send the current stable weight value with the currently displayed unit and then continuously after every weight change greater or equal to the preset value a non-stable (dynamic) value followed by the next stable value, range = 1 d to maximal capacity. If no preset value is entered, the weight change must be at least 12.5% of the last stable weight value, minimum = 30 d.

Balance Responses

S␣S␣<*WeightValue*>␣<*Unit*>	Current, stable weight value with the currently displayed unit until 1st weight change.
S␣D␣<*WeightValue*>␣<*Unit*>	Non-stable (dynamic) weight value with the currently displayed unit.
S␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring).
S␣+	Balance in overload range.
S␣-	Balance in underload range.

Comment

- As the **SR** command, but with currently displayed unit.
- SRU is overwritten by the commands **S, SI, SIR, @** and hardware break and hence cancelled.
- In contrast to **SR**, **SNRU** only sends stable weight values.
- If, following a non-stable (dynamic) weight value, stability has not been reached within the timeout interval, the response **S␣I** is sent and then a non-stable weight value. Timeout then starts again from the beginning.
- The preset value can be entered in any by the balance accepted unit.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Balance Responses with Weight Value.

Example

↓	SRU	Send the current stable weight value followed by every default load change with current display unit
↑	S␣S␣␣␣␣␣12.34␣lb	1st weight value is stable and12.34 lb
↑	S␣D␣␣␣␣␣13.88␣lb	2nd weight value is non-stable and13.88 lb
↑	S␣S␣␣␣␣␣15.01␣lb	3rd weight value is stable and15.01 lb

ST – Send Stable Weight Value on Pressing 🖶 (Transfer) Key Level 2

Description

Use ST to send the current stable weight value when the transfer key (🖶) is pressed. The value is sent, along with the currently displayed unit, from the balance to the connected communication partner via the interface.

Syntax

Commands

ST	Query of the current status of the ST function.
ST␣1	Sent the current stable net weight value with Display unit each time when the transfer key (🖶) is pressed.
ST␣0	Stop sending weight value when Print key is pressed.

Balance Responses

ST␣A␣0	Function inactive, no weight value is sent when the transfer key (🖶) is pressed.
ST␣A␣1	Function active, weight value is sent each time when the transfer key (🖶) is pressed.
ST␣A	Command understood and executed successfully.
ST␣I	Command understood but currently not executable (balance is currently executing another command).
ST␣L	Command understood but not executable (incorrect parameter; certified version of the balance).

Comments

- ST␣0 is the factory setting (default value).
- ST function is not active after switching on and after reset command.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Balance Responses with Weight Value.

Examples

↓	ST␣1	Activate ST function
↑	ST␣A	Command executed.
↑	S␣S␣␣␣␣123.456␣g	When transfer key (🖶) pressed: current net weight is 123.456 g

SU – Send Stable Weight Value with Currently Displayed Unit — Level 2

Description

Use SU to send a stable weight value, along with the currently displayed unit, from the balance to the connected communication partner via the interface.

Syntax

Command

SU	Send the current stable net weight value with the currently displayed unit.

Balance Responses

S␣S␣<*WeightValue*>␣<*Unit*>	Current stable weight value with the currently displayed unit.
S␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring, or timeout as stability was not reached).
S␣+	Balance in overload range.
S␣-	Balance in underload range.

Comments

- As the S command, but with currently displayed unit.
- The draft shield closes with this command, when the "Door function" is set on "Automatic". It opens after sending a stable weight.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Balance Responses with Weight Value.

Example

↓	SU	Send the stable weight value with the currently displayed unit
↑	S␣S␣␣␣␣␣␣12.34␣lb	The current, stable weight value is 12.34 lb

SUM – Send Stable Weight Value With Currently Displayed Unit and MinWeigh Information Level 2

Description

Use SUM to send the current stable weight value, along with the currently displayed unit and the MinWeigh information, from the balance to the connected communication partner via the interface.

Syntax

Command

SUM	Send the current stable net weight value with currently displayed unit and MinWeigh Information.

Balance Responses

S␣<*Status*>␣<*WeightValue*>␣<*Unit*>	Weight value in currently displayed unit.
S␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring).
S␣+	Balance in overload range.
S␣-	Balance in underload range.

Parameters

Name	Type	Values	Meaning
<*Status*>	String	S	Stable, >= MinWeigh limit
		M	Stable, < MinWeigh limit
<*WeightValue*>	Float		Weight value
<*Unit*>	String		Display-Unit

Comment

- As the **S** command, but with currently displayed unit and MinWeigh information.
- If a weight other than the net weight is displayed, only the "S" index and the stable weight value displayed are output on the interface.
- If the MinWeigh function is switched off or not available on the balance, the corresponding command is **SU**.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Balance Responses with Weight Value.

Example

↓	SUM	Query of the current weight value with currently displayed unit
↑	S␣M␣␣␣␣123.34␣mg	Stable weight displayed, less than MinWeigh limit

↓	SUM	Query of the current weight value with currently displayed unit
↑	S␣S␣␣␣␣123.34␣mg	Stable weight displayed, greater than MinWeigh limit

T – Tare — Level 1

Description

Use T to tare the balance. The next stable weight value will be saved in the tare memory.

Syntax

Command

T	Tare, i.e. store the next stable weight value as a new tare weight value.

Balance Responses

T␣S␣<*TareWeightValue*>␣<*Unit*>	Taring successfully performed. The tare weight value returned corresponds to the weight change on the balance in the unit actually set under host unit since the last zero setting.
T␣I	Command understood but currently not executable (balance is currently executing another command, e.g. zero setting, or timeout as stability was not reached).
T␣+	Upper limit of taring range exceeded.
T␣-	Lower limit of taring range exceeded.

Comments

- The tare memory is overwritten by the new tare weight value.
- The duration of the timeout depends on the balance type.
- Clearing tare memory: See command **TAC**.
- The draft shield closes with this command, when the "Door function" is set on "Automatic". It opens after sending a stable weight.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Balance Responses with Weight Value.

Example

↓	T	Tare
↑	T␣S␣␣␣␣100.00␣g	The balance is tared and has a value of 100.00 g in the tare memory

TA – Query/Preset Tare Weight Value — Level 1

Description

Use TA to query the current tare value or preset a known tare value.

Syntax

Command

TA	Query of the current tare weight value.
TA␣<*TarePresetValue*>␣<*Unit*>	Preset of a tare value.

Balance Responses

TA␣A␣<*TareWeightValue*>␣<*Unit*>	Query current tare weight value in tare memory, in unit actually set under host unit.
TA␣I	Command understood but currently not executable (balance is currently executing another command, e.g. zero setting, or timeout as stability was not reached).
TA␣L	Command understood but not executable (incorrect parameter).

Comments

- The tare memory will be overwritten by the preset tare weight value.
- The inputted tare value will be automatically rounded by the balance to the current readability.
- The taring range is specified to the balance type.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Balance Responses with Weight Value.

Example

↓	TA␣100.00␣g	Preset a tare weight of 100 g
↑	TA␣A␣␣␣␣100.00␣g	The balance has a value of 100.00 g in the tare memory

See also

TAC – Clear Tare Value

TAC – Clear Tare Value — Level 1

Description

Use TAC to clear the tare memory.

Syntax

Command

TAC	Clear tare value.

Balance Responses

TAC␣A	Tare value cleared, 0 is in the tare memory.
TAC␣I	Command understood but currently not executable (balance is currently executing another command, e.g. zero setting).

TI – Tare Immediately — Level 1

Description

Use TI to tare the balance immediately and independently of balance stability.

Syntax

Command

TI	Tare immediately, i.e. store the current weight value, which can be stable or non stable (dynamic), as tare weight value.

Balance Responses

TI␣S␣<*TareWeightValue*>␣<*Unit*>	Taring performed, stable tare value. The new tare value corresponds to the weight change on the balance since the last zero setting.
TI␣D␣<*TareWeightValue*>␣<*Unit*>	Taring performed, non-stable (dynamic) tare value.
TI␣I	Command understood but currently not executable (balance is currently executing another command, e.g. zero setting).
TI␣L	Command understood but not executable (e.g. certified version of the balance).
TI␣+	Upper limit of taring range exceeded.
TI␣-	Lower limit of taring range exceeded.

Comments

- The tare memory will be overwritten by the new tare weight value.
- After a non-stable (dynamic) stored tare weight value, a stable weight value can be determined. However, the absolute value of the stable weight value determined in this manner is not accurate.
- The stored tare weight value is sent in the unit actually set under host unit.
- This command is not supported by approved balances.
- The taring range is specified to the balance type.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Balance Responses with Weight Value.

Example

↓	TI	Tare immediately
↑	TI␣D␣␣␣␣117.57␣g	The tare memory holds a non-stable (dynamic) weight value

See also

TAC – Clear Tare Value

TIM – Query/Set Time — Level 2

Description

Set the system time of the balance or query the current setting.

Syntax

Commands

TIM	Query of the current time of the balance.
TIM␣<*hh*>␣<*mm*>␣<*ss*>	Set the time of the balance.

Balance Responses

TIM␣A␣<*hh*>␣<*mm*>␣<*ss*>	Current time of the balance.
TIM␣A	Command understood and executed successfully.
TIM␣I	Command understood but currently not executable (balance is currently executing another command).
TIM␣L	Command understood but not executable (incorrect parameter, e.g. 22␣67␣25) or no clock is built in.

Parameters

Name	Type	Values	Meaning
<*hh*>	Integer	00..23	Hours
<*mm*>	Integer	00..59	Minutes
<*ss*>	Integer	00..59	Seconds

Comment

- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or the balance system settings (not @ or a master reset).

Example

↓	TIM	Query of the current time of the balance
↑	TIM␣A␣09␣56␣11	The current time of the balance is 9 hours, 56 minutes and 11 seconds

TST0 – Query/Set Test Function Settings — Level 2

Description

Use TST0 to query the current setting for testing the balance, or to specify the type of testing (internal or external).

Syntax

Commands

TST0	Query of the setting for the test function.
TST0␣<*Test*>	Set the test configuration of the balance.

Balance Responses

TST0␣A␣<*Test*>␣"<*TestWeightValue*>␣<*Unit*>"	Current setting for the test function.
TST0␣A	Command understood and executed successfully.
TIM␣I	Command understood but currently not executable (balance is currently executing another command).
TIM␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<*Test*>	Integer	0	Test with internal weight
		1	Test with external weight
<*WeightValue*>	Float		Weight of the external weight currently set that is requested in the test from the balance user via the display
<*Unit*>	String		Unit of the external weight currently set

Comments

- The current value of the external weight can be seen in the menu under "Test" (see operating instructions).
- The value of the external weight is set in the menu under "Test" or with **M20**.
- With an internal test, no weight value appears.
- Use **@** to abort a running test.
- For additional information on testing the adjustment, see the Manual for the balance.

Example

↓	TST0	Query of the current setting for the test and the value of the external test weight
↑	TST0␣A␣1␣␣␣␣2000.0␣g	The current setting corresponds to the test with an external weight. For a test initiated with the TST2 command (see below), an external weight of 2000.0 g is needed.

TST1 – Start Test Function According to Current Settings — Level 2

Description

Use `TST1` to start the balance test function using the preset parameter settings.

Syntax

Commands

`TST1`	Start test function in the current setting (**`TST0`**, **`M20`**).

First Balance Responses

`TST1␣B`	The test procedure has been started. Wait for next response (see comment).
`TST1␣I`	Command understood but currently not executable (balance is currently executing another command). No second response follows.
`TST1␣L`	Command understood but not executable (incorrect parameter). No second response follows.

Further Balance Responses

`TST1␣"<WeightValue>␣<Unit>"`	Prompt to unload and load the balance (only with external weight).
`TST1␣A␣"<WeightValue>␣<Unit>"`	Test procedure completed successfully. Weight value with unit corresponds to the deviation from the specified value displayed after the test. No unit is specified if the test has been performed with the internal weight.
`TST1␣I`	The test procedure has been aborted as, e.g. stability was not attained or wrong weights were loaded.

Comment

- Commands sent to the balance during the test procedure are not processed and responded to in the appropriate manner until the test procedure is at an end.
- Use **@** to abort a running test.
- For additional information on testing the adjustment, see the Manual for the balance.

Example

↓	`TST1`	Start test function in the current setting
↑	`TST1␣B`	The test procedure has been started
↑	`TST1␣"␣␣␣0.00000␣g"`	Clear weighing pan
↑	`TST1␣"␣100.00000␣g"`	Load 100 g external weight
↑	`TST1␣"␣␣␣0.00000␣g"`	Unload weight
↑	`TST1␣A␣"␣␣␣0.00020␣g"`	Test completed, current difference is 0.00020 g

TST2 – Start Test Function with External Weight — Level 2

Description

Use TST2 to start the balance test function using external test weights.

Syntax

Commands

TST2	Start test function with external weight.

First Balance Responses

TST2␣B	The test procedure has been started. Wait for next response (see comment).
TST2␣I	Command understood but currently not executable (balance is currently executing another command). No second response follows.
TST2␣L	Command understood but not executable (incorrect parameter). No second response follows.

Further Balance Responses

TST2␣"*<WeightValue>*␣*<Unit>*"	Prompt to unload and load the balance.
TST2␣A␣"*<WeightValue>*␣*<Unit>*"	Test procedure completed successfully. Weight value with unit corresponds to the deviation from the specified value displayed in the top line after the test.
TST2␣I	The test procedure has been aborted as, e.g. stability was not attained or wrong weights were loaded.

Comment

- Commands sent to the balance during the test procedure are not processed and responded to in the appropriate manner until the test procedure is at an end.
- The value of the external weight is set in the menu under "Test" or with **M20**.
- Use **@** to abort a running test.
- For additional information on testing the adjustment, see the Manual for the balance.

Example

↓	TST2	Start test with external weight
↑	TST2␣B	The test procedure has been started
↑	TST2␣"␣␣␣0.00␣g"	Prompt to unload the balance
↑	TST2␣"␣200.00␣g"	Prompt to load the test weight
↑	TST2␣"␣␣␣0.00␣g"	Prompt to unload the balance
↑	TST2␣A␣"␣␣␣0.01␣g"	External test completed successfully

TST3 – Start Test Function with Internal Weight — Level 2

Description

Use `TST3` to start the balance test function using internal test weights.

Syntax

Commands

`TST3`	Start test function with built-in weight.

First Balance Responses

`TST3␣B`	The test procedure has been started. Wait for next response (see comment).
`TST3␣I`	Command understood but currently not executable (balance is currently executing another command). No second response follows.
`TST3␣L`	Command understood but not executable (incorrect parameter). No second response follows.

Further Balance Responses

`TST3␣A␣"<WeightValue>"`	Test procedure completed successfully. Weight value corresponds to the deviation from the specified value displayed after the test.
`TST3␣I`	The test procedure has been aborted as, e.g. stability was not attained or wrong weights were loaded.

Comment

- The commands received immediately after the first response are not processed and responded to in the appropriate manner until after the second response.
- Use `@` to abort a running test.
- For additional information on testing the adjustment, see the Manual for the balance.

Example

↓	`TST3`	Start test with internal weight
↑	`TST3␣B`	The test procedure has been started
↑	`TST3␣A␣"␣␣␣␣␣0.01"`	Test with internal weight completed successfully. The difference to the specified value is 0.01.

UPD – Query/Set Update Rate of the Host Interface — Level 2

Description

Use UPD to set the update rate of the host interface or query the current setting.

Syntax

Commands

UPD	Query of the update rate of the host interface.
UPD␣<*UpdateRate*>	Set the update rate of the host interface.

Balance Responses

UPD␣A␣<*UpdateRate*>	Current setting of the update rate of the host interface.
UPD␣A	Command understood and executed successfully.
UPD␣I	Command understood but currently not executable (balance is currently executing another command).
UPD␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<*UpdateRate*>	Float	1..100	Update rate in values per second Terminal: 1..23, stand-alone bridge: 1..100

Comment

- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS (not **@** or a master reset).
- Use UPD to configure the update rate of **SIR** and **SIRU**.
- The balance can not realize every arbitrary update rate. The specified update rate is therefore rounded to the next realizable update rate. Use UPD without parameter to query the actually configured update rate.
- If an update rate greater than 23 is pecified for a stand-alone bridge, an update rate less than 23 must be specified before re-attaching a terminal. Otherwise, unpredictable behavior may occur.

Example

↓	UPD	Query of the update rate of the host interface
↑	UPD␣A␣20.2	The update rate of the interface is 20.2 values per second

WS – Query/Set Position of Draft Shield Doors — Level 2

Description

You can use WS to query the position of the draft shield doors. However, you can also use it to open or close the doors.

Syntax

Commands

WS	Query of the position of the draft shield door(s).
WS␣<*DoorPosition*>	Set the position of the draft shield door(s).

Balance Responses

WS␣A	Command understood and executed successfully.
WS␣I	Command understood but currently not executable (balance is currently executing another command).
WS␣L	Command understood but not executable (incorrect parameter).

Comments

- The user must ensure that the doors are in the correct position. If the doors are blocked when closing, then they return to their original position. The position can be monitored by an inquiry command.
- If the balance has an additional inner draft shield, when the position is queried the "interim" position is output until both of the draft shield units are in the required end position. A draft shield drive error will be indicated by status value = 8 (Error). It is not possible to control either of the draft shield units individually.

Parameter

Name	Type	Values	Meaning
<*DoorPosition*>	Integer	0	Door(s) closed
		1	Door(s) open
		8	Error
		9	Intermediate

Example

↓	WS␣1	Open the draft shield door(s)
↑	WS␣A	Draft shield door(s) opened

See Also

M37 – Query/Set Draft Shield Door Opening Width

M40 – Query/Set Inner Draft Shield Door Opening Width

Z – Zero — Level 0

Description

Use Z to set a new zero; all weight values (including the tare weight) will be measured relative to this zero. After zeroing has taken place, the following values apply: tare weight = 0; net weight (= gross weight) = 0.

Syntax

Command

Z	Zero the balance.

Balance Responses

Z␣A	Zero setting successfully performed. Gross, net and tare = 0.
Z␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring, or timeout as stability was not reached).
Z␣+	Upper limit of zero setting range exceeded.
Z␣-	Lower limit of zero setting range exceeded.

Comments

- The tare memory is cleared after zero setting.
- The zero point determined during switching on is not influenced by this command, the measurement ranges remain unchanged.
- The duration of the timeout depends on the balance type.
- The draft shield closes with this command, when the "Door function" is set on "Automatic". It opens after sending a stable weight.

Example

↓	Z	Zero
↑	Z␣A	Zero setting performed

ZI – Zero Immediately — Level 0

Description

Use ZI to set a new zero immediately, regardless of balance stability. All weight values (including the tare weight) will be measured relative to this zero. After zeroing has taken place, the following values apply: tare weight = 0; net weight (= gross weight) = 0.

Syntax

Command

ZI	Zero the balance immediately regardless the stability of balance.

Balance Responses

ZI␣D	Re-zero performed under non-stable (dynamic) conditions.
ZI␣S	Re-zero performed under stable conditions.
ZI␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring).
ZI␣-	Upper limit of zero setting range exceeded.
ZI␣-	Lower limit of zero setting range exceeded.

Comments

- The tare memory is cleared after zero setting.
- This command is not supported by approved balances.
- The zero point determined during switching on is not influenced by this command, the measurement ranges remain unchanged.

Example

↓	ZI	Zero immediately
↑	ZI␣D	Re-zero performed under non-stable (dynamic) conditions

4 Commands Listed by Tasks

4.1 Weighing, Zeroing, Taring

Weighing	S	Send Stable Weight Value
	SI	Send Weight Value Immediately
	SIR	Send Weight Value Immediately and Repeat
	SR	Send Weight Value on Weight Change (Send and Repeat)
	SIS	Send Weight Value with Actual Unit and Weighing Status
	SIU	Send Weight Value with Currently Displayed Unit Immediately
	SIUM	Send Weight Value With Currently Displayed Unit and MinWeigh Information Immediately
	SIRU	Send Weight Value with Currently Displayed Unit Immediately and Repeat
	SNR	Send Stable Weight Value and Repeat on Weight Change
	SNRU	Send Stable Weight Value with Currently Displayed Unit and Repeat on Weight Change
	SRU	Send Stable Weight Value with Currently Displayed Unit on Weight Change
	ST	Send Stable Weight Value on Pressing 🖷 (Transfer) Key
	SU	Send Stable Weight Value with Currently Displayed Unit
	SUM	Send Stable Weight Value With Currently Displayed Unit and MinWeigh Information See also commands specially used with MinWeigh
Zeroing	Z	Zero
	ZI	Zero Immediately
	M35	Query/Set Zeroing Mode at Start-Up
Taring	T	Tare
	TA	Query/Preset Tare Weight Value
	TAC	Clear Tare Value
	TI	Tare Immediately
	A08	Dynamic Weighing: Query/Set AutoTare

4.1.1 Setup

Status	I0	List All Implemented MT-SICS Commands
	B00	FastHost: List Commands
	M25	List Applications
	DAT	Query/Set Date
	TIM	Query/Set Time
	PWR	Power On/Off
Cancel, Reset	@	Cancel
	SM0	Dynamic Weighing: Cancel all SMx Commands
	DW	Display: Show Weight
Weighing filter setup	M01	Query/Set Weighing Mode
	M02	Query/Set Environment
	M29	Query/Set Value Release
	M03	Query/Set AutoZero
	I20	Query MinWeigh Parameter
Terminal, Display	D	Display: Write Text to Display
	DW	Display: Show Weight
	K	Keys: Query/Set Configuration
	M04	Query/Set SmartSens Functions
	M08	Display: Query/Set Brightness

	M09	Display: Query/Set Contrast
	M11	Beeper: Query/Set Volume
	M12	Beeper: Beep
	M13	Query/Set Touch Function
	M14	List Available Languages
	M15	Query/Set Language
	M16	Query/Set Standby Mode
	M23	Query/Set Readability, 1d/xd
	M24	Query/Set Print Key Function
	PWR	Power On/Off
Door	M37	Query/Set Draft Shield Door Opening Width
	M40	Query/Set Inner Draft Shield Door Opening Width
	WS	Query/Set Position of Draft Shield Doors
	M07	Query/Set AutoDoor

4.2 General Setup

4.2.1 Printer

Printer	M24	Query/Set Print Key Function
	P100	Printer Interface: Send Text
	P101	Printer Interface: Send Weight Value
	P102	Printer Interface: Send Weight Value Immediately

4.2.2 Applications

MinWeigh	I17	MinWeigh: Query Date of Next Test
	I18	MinWeigh: Query Method
	I19	MinWeigh: Query Limits
	I20	Query MinWeigh Parameter
	SUM	Send Stable Weight Value With Currently Displayed Unit and MinWeigh Information
	SIUM	Send Weight Value with Currently Displayed Unit and MinWeigh Information Immediately
	M34	MinWeigh: Query/Set Method
Percent Weighing	A01	Percent Weighing: Query/Set Reference in %
	M25	List Applications
	M26	Query/Set Current Application
	SU	Send Stable Weight Value with Currently Displayed Unit
Piece Counting	PW	Piece Counting: Query/Set Piece Weight
	M25	List Applications
	M26	Query/Set Current Application
	SU	Send Stable Weight Value with Currently Displayed Unit
Dynamic Weighing	A06	Dynamic Weighing: Query/Set Filter
	A07	Dynamic Weighing: Query/Set AutoStart
	A08	Dynamic Weighing: Query/Set AutoTare
	A09	Dynamic Weighing: Query/Set Data Acquisition
	SM0	Dynamic Weighing: Cancel all SMx Commands
	SM1	Dynamic Weighing: Start Immediately and Send the Result
	SM2	Dynamic Weighing: Start After a Minimum Load Is Exceeded and Send Result
	SM3	Dynamic Weighing: Start After a Minimum Load Is Exceeded, Send Result and Repeat
	SM4	Dynamic Weighing: Query/Set Time Interval
	M25	List Applications
	M26	Query/Set Current Application

Weighing to a nominal value	A10	Weighing: Query/Set Nominal, +Tolerance, -Tolerance

4.2.3 Options

Data Interface	COM	Query/Set Serial Interface Communication Parameters
	UPD	Query/Set Update Rate of the Host Interface

4.3 Adjustment/Test

Adjustment	C0	Query/Set Adjustment Settings
	C1	Start Adjustment According to Current Settings
	C2	Start Adjustment with External Weight
	C3	Start Adjustment with Internal Weight
	M19	Query/Set Adjustment Weight
	M17	ProFACT: Query/Set single Time Criteria
	M18	ProFACT/FACT: Query/Set Temperature Criterion (Δ temp.)
	M32	ProFACT: Query/Set Time Criteria
	M33	ProFACT: Query/Set Weekday
	M27	Query Adjustment History
Test Function	TST0	Query/Set Test Function Settings
	TST1	Start Test Function According to Current Settings
	TST2	Start Test Function with External Weight
	TST3	Start Test Function with Internal Weight
	M20	Query/Set Test Weight

4.4 Balance Information

Balance Information	I0	List All Implemented MT-SICS Commands
	B00	FastHost: List Commands
	I1	Query MT-SICS Level and MT-SICS Versions
	I2	Query Balance Data (Type and Capacity)
	I3	Query Balance Software Version and Type Definition Number
	I4	Query Serial Number
	I5	Query SW-Identification Number
	I10	Query Balance ID
	I11	Query Balance Type
	I14	Query Balance Information
	M36	Query/Set LevelControl

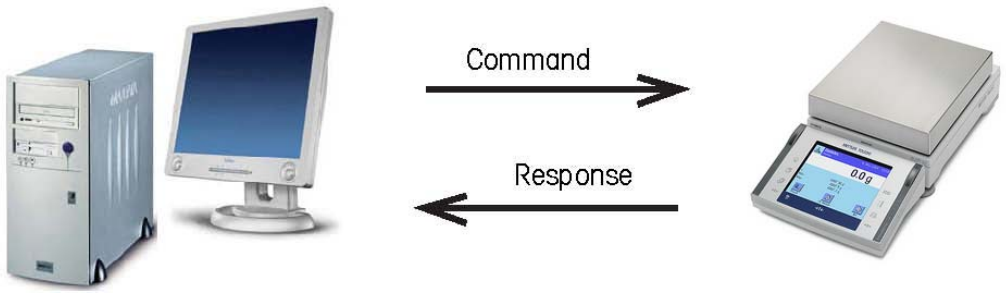
4.5 Fast Data Communication

Fast Host Commands	B00	FastHost: List Commands
	B01	FastHost: Send Individual Value
	B02	FastHost: Start/Stop Continuous Mode
	B03	FastHost: Query Time Interval of Value Counter
	B04	FastHost: Query/Set Format Specification
	B05	FastHost: Query/Set Stability Criteria
	B06	FastHost: Query/Set Downsampling Factor
	B07	FastHost: Query/Set Switch-On Mode
	B08	FastHost: Zero with FastHost Stability Criteria

5 Example: Formula weighing application

The following simple formula weighing application shows the data interchange between the computer with the formula weighing program and the balance.

A substance (S = 121 g) comprising components C1 = 100 g and C2 = 21 g needs to be weighed into a beaker.
If too much or too little of the first component is weighed in, the target weight of the second component should be adjusted so that the ratio of the two components remains the same. The user is guided by the balance display and acknowledges his actions with the tare key. In the end, the total weight of the substance is displayed.



↓	@	Cancel any running command
↑	I4 A "1114350697"	Balance is reset. The serial number is 1114350697
↓	K 3	Disable key function and report each keystroke
↑	K A	Command understood and executed successfully
↓	D "BEAKER"	Write "BEAKER" into the balance display to prompt loading the beaker
↑	D A	"BEAKER" appears in the balance display
↑	K C 10	Acknowledges that the tare key has been pressed
↓	T	Tare weight on the balance
↑	T S 70.0000 g	The beaker weighs 70.0000 g
↓	D "C1 100g"	Write "C1 100g" into the balance display to prompt adding component C1 = 100 g
↑	D A	"C1 100g" appears in the balance display
↑	K C 10	Acknowledges that the tare key has been pressed
↓	S	Get actual weight of component 1
↑	S S 105.0000 g	Target weight of component 1 missed by 5 g → 5% to much
↓	T	Tare weight on the balance
↑	T S 175.0000 g	Contents of the tare memory, now corresponds to gross weight
↓	D "C2 22.5g"	Write "C2 22.5g" into the balance display to prompt adding component C2 = 21 g + 5% = 22.5 g
↑	D A	"C2 22.5g" appears in the balance display
↑	K C 10	Acknowledges that the tare key has been pressed
↓	TA 70 g	Preset the tare weight of the beaker (70 g)
↑	TA 70.0000 g	The balance acknowledges the tare weight of 70 g
↓	DW	Switch balance display to show the weight again
↑	DW A	127.5000 g appears in the balance display

6 What if...?

Tips from actual practice when the communication between the system (computer) and the balance does not function.

Establishing the communication

Switch the balance off with the corresponding "Off" key and then on again with the "On" key.

The balance must now send identification string **I4**, e.g. **I4␣A␣"0123456789"**.

If this is not the case, check the following points.

Connection

For bidirectional communication, at least three connecting lines are needed:

- Data line from the balance (TxD signal with RS232 interface).
- Data line to the balance (RxD signal with RS232 interface).
- Signal ground line (SG with RS232 interface).

Make sure that all these connections are in order. Check the connector pin assignment of the connection cables.

Interface parameters

For the transmission to function properly, the settings of the following parameters must match at both the computer and the balance:

- Baud rate (send/receive rate)
- Number of data bits
- Parity bit

Check the settings at both devices.

Handshake

For control of the transmission, in part separate connection lines are used (CTS/DTR). If these lines are missing or wrongly connected, the computer or balance can not send or receive data.

Check whether the balance is prevented from transmitting by handshake lines (CTS or DTR). Set the parameter "protocol" for the balance and the peripheral device to "No Handshake" or "none". The handshake lines now have no influence on the communication.

Characters are not displayed correctly

In order to display ASCII characters >127 dec., ensure that 8-bit communication is taking place.

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